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TIME-STUDY AND TASK WORK

The primary object of scientific methods of management is to increase the productive capacity of a man or of a machine so as eventually to reduce the cost of the product to the consumer, and at the same time to increase the remuneration of the worker. This must be accomplished not by mere speeding up. It must be done by so arranging the work of the man as to eliminate unnecessary operations and waste of time, and by teaching him to perform each necessary operation in the best manner possible. It must be done by standardizing the running of the machine so as to fit each machine, as regards speed, accuracy, and constancy of operation, for the particular work it has to do.

The primary defect in the common types of management, however comprehensive they may be as regards organization, lies in the lack of application of scientific methods—the lack of methods which start at the bottom and thoroughly study each element in the process and then finally adopt a comprehensive plan of management which shall consider all the details and all the processes in the plan so as to produce one effective working combination, with the functions of each individual definitely designated.

This scientific method, the method of starting at the bottom, analyzing operations and standardizing all implements and machines, is difficult, it is slow, at the beginning it is costly. The problem to consider, then, is whether it will produce permanent

results that will pay in the long run better than day work or piece work or the premium plan as commonly employed.

Let us contrast for a moment the usual plan of fixing piece rates with the time-study method. Under the usual plan the foreman and superintendent get together, look over records and compare cost records of past performances, and then "guess" at the speed at which they think a man ought to do the job. In probably 99 cases out of 100 this guess will be wrong. If the rate which they conclude to fix is too low, the men will fail to earn usual day wages, and a strike is probable. If, as is more apt to be the case, the rates are too high, the men soon speed up so that they earn more than the management thinks they are entitled to. Immediately, the rate is cut, and the same operation is repeated. After one or two transactions of this kind, the men see that it is useless to try to earn a big wage, and when a new rate is set, they fix among themselves a definite output per day that will give them the highest wage that the management will pay. This is no mere theory, but is almost universal practice in piece-work shops.

How, then, do methods of scientific time-study for rate-fixing differ in principle from the ordinary plan of comparing cost records? The taking of records, the finding how long it has taken a man or a woman to do a certain piece of work is as old as the hills. Records of outputs on the various machines are given in every factory. The obtaining of such records, however, is not time-study. What then *is* time-study? Perhaps even some manufacturers do not know the difference between the ordinary way of finding how long it takes to do a piece of work, and time-study methods.

Let us take for an illustration the making and erecting of forms or molds for reinforced concrete buildings—the forms into which the semi-liquid concrete is poured in order to mold it to the proper dimensions for columns, beams, and slabs. The cost of forms is ordinarily figured either in terms of cubic yards of concrete or else in terms of square feet of surface area. Neither method is accurate. Take one of the simplest processes, the making-up of a side for a column form. The side of a column form consists simply of a panel made up of lengths of boards or planks with wooden cleats nailed across them at intervals. The cleats are placed upon the

work-bench, the boards or planks are placed across the cleats and nails are driven to fasten the cleats to the boards. Suppose in one case we have a form or panel for one side of a column 12 inches square. Suppose in another case, we have a similar form for a column 24 inches square. How shall we determine the comparative cost? Based on terms of the cubic yards of concrete in the column, the cost of the form for the 24-inch column should be four times as much as for the 12-inch. Based on surface area, the cost for the 24-inch should be twice that of the 12-inch. As a matter of fact, the time for making up of the 24-inch is only a little over one-third more than that of the 12-inch, and there is even less difference than this for the other operations of erecting and removing. Other parts of the work will be governed by still different ratios, so different, in fact, that it is absolutely impossible to figure accurate costs or set tasks by any system of cost records.

Time-study does it in this way: It takes the times of the elementary or unit operations of the man who makes the form. It finds out how long it takes him to place one cleat on the bench. It finds how long it takes to put a single board or plank on the bench. It finds out how long it takes him to drive one nail. It finds how long it takes to place the finished form on the pile. By taking a lot of observations on each unit and allowing a definite fixed percentage for the necessary rest, it is possible from such unit observations as these to determine the time, and therefore the cost for making up forms of any shape and size. If a certain form has more cleats, the unit time per cleat must simply be multiplied by the extra number; if more individual boards, the time per board by a different number of boards; if more nails, the time per nail by a different number of nails. By such processes as these it has been found possible to make up accurate tables for times and costs of forms of all lengths and sizes and shapes. By the other method of over-all times, a separate observation would have had to be made on every different length, width, and type and design. Records on one job would have been absolutely worthless for another or even for the same job under different conditions.

The same principles apply to other classes of work in the shop or in construction.

Time-study not only shows the time in which the work should be done, but it also assists in standardizing the methods and the implements. In connection with the making of forms, for example, it was found by time-study that a certain type of hammer was better than any other. It was found that a certain method of erecting the forms was considerably cheaper than any other plan. It was found that the number and size of nails, which ordinarily varied with each individual carpenter, could be fixed by definite standards to avoid waste in time and materials. It was found that there were certain methods of handling the lumber which were cheaper than any other way. It was shown by actual figures how much saving could be accomplished by furnishing laborers to do all of the heavy work so that the carpenters could stick to their job of carpentry.

This has been chosen as a typical case. It is *always* found, even in such simple work as carpentry, when time-studies are made and the work is thoroughly analyzed, that processes are improved and waste of time and of material is prevented.

Such studies are expensive. This is true, so far as the obtaining of the original data is concerned. It is to be remembered, however, that, once the data are obtained, the unit times and the standards are adapted, not only for that one piece of work, not only for that one locality, but for all processes, anywhere, involving the units observed. Ordinary over-all records taken in any one shop are quite useless for another shop. In time-study work the case is entirely different. We have instances of data taken in Philadelphia on the manufacture of one type of machinery being used in Boston for the manufacture of an entirely different type of machinery. While the work was different, the same units were used in the processes. The collection of such data in the various trades will therefore eventually prove of universal value.

The most important function of time-study, as has been implied, is setting tasks or fixing piece rates. Time-study is useful, also, for making more exact estimates. It is useful for standardizing implements and machines. It is useful for arranging a gang of men. In a recent civil service examination for a $4,000 engineering position, one of the questions asked for the general principle

involved in laying out a gang of men and horses for hauling earth from a bank to a distance of 1,000 feet. Out of 17 applicants, less than half appreciated the most elementary principle that the number of men loading carts must be governed by the time required for the carts to take the trip to and from the dump.

Many of those who have considered these methods in a superficial manner are doubtless saying to themselves: "This is all very well for some kinds of work; it is all right for simple work, such as form-making, but it cannot be done in the work with which I am connected." It would be almost amusing, if it were not so serious, to hear such a remark as this repeated over and over again by men in all classes of work with which we come in contact. The most practical answer lies in the fact that time-studies *have* been made and task work or scientific piece work actually has been introduced in so many classes of work that it is possible to state without question that the method is of practically universal application.

Not long ago, at a conference, a paper was read on the subject of the limitations of scientific management. The idea was expressed by the writer (who evidently had never come in close contact with the system) that scientific management was applicable to many classes of work, but that it was out of the question to apply task methods to the miscellaneous operations in the machine shop. Unfortunately for the person who read the paper, another speaker on the program was the president of a large machine shop, not merely manufacturing standard tools but making up miscellaneous orders. He stated that in his shop scientific methods of management had prevented failure during the hard times in 1907, had greatly increased output, and at the same time had reduced the number of men. If a machine shop manufacturing goods for special orders can have such complete records of time-study and unit times that task work is possible, one may be challenged to find *any* class of work involving labor either indoors or out-of-doors where tasks cannot be fixed by proper time-study.

In addition to the question as to the possibility of task work some persons may have raised in their minds the question of quality. Will quality be reduced by scientific task work? Experience in

scientific methods of management has shown positively not only that quality is not reduced, but that it is improved. As a matter of fact, tasks, if properly handled, provide a means for regulating, not merely the quantity, but also the quality of output. In many classes of work, the saving of material is of much greater importance than the saving in time. In such cases, the worker is paid a bonus, not simply for time, but for quality. In fact, the largest proportion of the bonus frequently is based on the saving of material.

So far have been discussed the general principles of time-study and the setting of tasks by scientific means. It is worth while to go somewhat farther into detail and consider the methods to be followed in making time-studies for task work.

There is one point, however, that I wish to make very clear indeed, because it is frequently a stumbling-block in the introduction of scientific methods of management. While time study is one of the fundamental principles involved in scientific management and while the other processes of management are centered to a considerable extent around the operation of tasks, in the sequence of the introduction of the new management, the setting of tasks is one of the last rather than the first of the operations to perform.

If a manufacturer wishes to take steps to increase his output, he naturally turns first to the consideration of the speed of the operative. How can I get more work out of my men? How can I determine in a scientific manner the amount of work they ought to do in a given time? How can I set the task or piece rate that will be fair? These are ultimate aims of a perfected organization, but instead of indicating the first thing to be done, they represent nearly the last. If you begin to set tasks without first getting your machines and your men and your methods of handling your materials into shape, you will fail absolutely in accomplishing anything but the most superficial results. It is just here that the scientific method differs most from the rule-of-thumb method.

The planning of the work is necessary in order that time shall not be wasted by the workers in ineffective effort. The routing must be carried to a high degree of excellence in order to distribute the materials properly and to permit the setting of individual

tasks. The worker must be trained in order to accomplish his task properly.

Turning to the matter of time-study when the plant is ready for it, the first thing that must be done, having obtained the necessary stop-watch and blanks for recording observations, is to analyze the operations. A decision must be made as to the elements or units into which each operation must be divided. In the case of form-making, for example, the units were placing cleat, placing board, driving nail, placing form on pile, together with certain others of less importance not mentioned. The sequence of operations must be determined so that the times can be readily entered. The time-study man must really learn each trade he observes. Preferably he should be chosen from the plant organization, since it is of much advantage for him to be familiar with the processes. On the other hand, a really expert time-study man, because of his power of analysis and of seeing the operations that are taking place, can handle any kind of work and in a very short time will know more of details than the manufacturer himself, simply because it is his job to watch each individual operation.

Standardizations of implements and machines must proceed hand in hand with the time-study. For example, even in such simple work as handling earth, the proper capacity of the cart or wheelbarrow must be determined, the size of shovel fixed, and so on. As a matter of fact, this standardization even in simple matters is much more intricate than one would think. In recent investigations of trenching made for the purpose of setting tasks, it was found that the ordinary classification of earth in terms of sand, loam, clay, etc., was absolutely worthless. The different classes so overlapped one another that no man could distinguish them accurately enough to fix a task. An entirely new plan had to be devised, and the secret was found to lie in considering the picking and the shoveling separately. The class of earth was determined by two sets of variables; one set based on the way in which the material picked and the other set on the load that could be put on the shovel.

With regard to the process to be followed in observations, the actual time-study is best made by taking a record of every opera-

tion which a man performs, including not merely the effective work, but the ineffective work and the lost time. The stop-watch is started, and the time in which the workman completes each operation, including the ineffective ones, is noted on the note sheets. Then, afterward, the results are studied and the operations tabulated and analyzed to see how much time is taken for the individual elements.

In making time-study, the selection of the operative to be observed is a very important point. Always select the best workers on the job for your principal observations. Even if the supply of labor is so small that it is impossible to limit the employment, in a particular branch, to men or women who are first-class operatives, and to relegate the other operatives to some of the places which they are better fitted to fill, the best workers should be selected because they work more steadily and their operations are more uniform. Also, the best workers are apt to use the best methods of doing the work and will adopt new suggestions more readily.

Observations taken on the best workers do not necessarily mean that these times can be used only for this class. A percentage has to be added to the net times in any case. By properly adjusting this percentage, the rates may be applied either to average workers working at a fair speed or to first-class workers.

It is usually a good plan to give the operative you observe a special incentive, such as an addition of 50 per cent to his or her pay on the day of the observation, as a compensation for the trouble you are making.

Having obtained the time of each of the units or elements by a large number of observations on the operatives selected, we are ready to make combinations of these unit times, so as to obtain the total required time for any operation containing these units. It is frequently convenient to make these combinations by means of a simple formula. For example, taking the making-up of the side of a column form, which has already been described, if we let

c = time placing cleat
b = time placing board
n = time driving nail
p = time lifting to pile,

then assuming 6 cleats, 2 boards, and 24 nails, the formula would be

$$6c+2b+24n+p$$

If seven cleats are used, the six in the first term would be changed to 7, if three boards are used, the $2b$ would be changed to $3b$ and so on. In practice, when task work is really started, these formulas are used to make up permanent tables, showing the total times for all the combinations that are apt to occur.

A percentage always must be added to the observed times before using them to set tasks, in order to provide for necessary lost time and delay occurring throughout the day. In certain kinds of work 30 per cent is a correct value for this. The per cent to add is governed by the character of the work and by the consideration of whether it involves machine or hand labor.

To fix the length of the task the time thus obtained may now be used directly. The general principle of task work is this: if the operative accomplishes the task in the time set, he is given his regular day wage for the period plus a substantial bonus. If he does not complete it in the given time, he receives his regular pay without the bonus. He never receives less than the day wage. If the data are to be used for setting scientific piece rates or premiums, the plan to be followed is somewhat different but the general principle is the same.

In determining the amount of bonus, it is necessary to bear in mind a fundamental law of Mr. Taylor's that "A man will not do a maximum day's work for an ordinary day's pay." In order to work at the best speed consistent with physical well-being, an operative must receive from 25 per cent to 75 per cent higher pay than his ordinary day wages.

To provide for required quality of the work, it is necessary, as has been said already, to adjust the bonus so that a man's payment will depend not simply upon output, but also on the quality of the product or the amount of material used.

In starting any form of piece work or task work an essential is to begin with one operative. See that this one is well started and making his or her bonus, before setting another similarly at work.

If a number of workers are started at the same time, one or more of them are certain to fall down and fail to accomplish their tasks in the set time, and this immediately gives an opportunity for dissatisfaction. The man or woman selected for the start should be one of the best in the department. He or she should be especially instructed just how to do the work, so that there can be no possible delay in handling the materials, and so that the operation will be accomplished with the fewest motions and by the best methods.

In beginning tasks on a certain line of work, it is frequently advisable to give a longer time than will be adopted permanently, provided, however, it is clearly stated to the operatives that this is simply temporary so as to enable them to become accustomed to the new methods, and provided it is also clearly stated that after a certain fixed period the rates will be changed to new, definitely stated figures. These permanent figures must be given out before tasks are begun. Never change this regular rate unless radical changes in methods or machinery are made by the management which reduce the amount of labor, and then only with the consent of the operatives.

As illustrations of the operation of task and bonus in practice, I may refer to one case of hand labor for girl operatives without machinery, where the reduction in cost averaged about 50 per cent during the first year after installation, while the girls accomplishing their tasks earned 40 per cent more than previously. In another case of two men operating a machine, the reduction in cost was about 35 per cent, notwithstanding a wage increase for tasks accomplished of 40 per cent. In form-making on construction it was found possible to reduce costs practically one-half, at the same time paying the men a very satisfactory bonus.

In such out-of-doors work as trenching, costs may be reduced say from 30 per cent to 70 per cent below average figures, according to the character of the work. For instance, such work as backfilling, when done by the day, gives a special opportunity for loafing on the part of the men, particularly where the gang is so small that a foreman is not assigned solely to each backfill job.

In many classes of machine work the increase in output is very large because of the standardization of the machine. In

certain government work, for example, such improvement increased the output over 2½ times. In cases of which we have record, not merely was the labor cost substantially reduced, but the cost of the material was reduced by as much as half, chiefly by the thorough planning and routing of the materials for each piece of work.

In considering such increases in output and reduction in cost as these it must be borne in mind very distinctly that the saving is not accomplished by mere speeding up. In form-making, for example, it is due in large measure to the use of unskilled in place of skilled labor for handling the materials; to the layout of each form by sketches carefully prepared and lettered; to the use of proper tools; and to the arrangement of benches so as to make it as easy as possible for the men to do their work. It is such savings as these that reduce costs of production in a fundamental way, that benefit the workingman through increase of wages, and by reducing bother and friction. Such savings truly effect more economical production of wealth and must result in reducing costs to the consumer.

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SCIENTIFIC MANAGEMENT APPLIED TO COMMERCIAL ENTERPRISES

Of late great attention has been paid to production. In manufacturing plants under scientific management nearly every useless motion has been eliminated, the workmen have been benefited, and product and profits have been increased. But in the distributing of the product—the greatest problem in business, and the test of a successful business organization—the rule of thumb, so carefully eliminated from production, obtains throughout the commercial world.

We live in a market-place. The people in it are buyers and sellers and there is great competition. It is easier to make things than to sell them. It is easier to get men to make things than it is to get men to sell them. Selling things consists in dealing with people, and it is people whom we must influence if our business is to be successful. These people are usually outside of the factory or salesroom, and therefore external efficiency is of the utmost importance to a business.

Many men pay so much attention to the internal efficiency of their businesses that they neglect external efficiency. "Your lathes may be rotating at precisely the right speed and yet turning out exactly the wrong product. What does it matter how efficiently you do a thing if it is not the efficient thing to do?"[1] In order that the lathes may not only rotate at precisely the right speed, but also turn out precisely the right product, both production and distribution must be co-ordinated. We know that production has been vastly benefited by scientific management. Why should not distribution likewise benefit? Does scientific management end when goods are loaded into a freight car? Is there no hope that the great principles may be applied throughout the entire business organization—to distribution as well as to production?

In the belief that goods made under scientific management can and should be sold by scientific management, I venture to offer

[1] Roger W. Babson in the *New York Times*, October 6, 1912.

my views on the subject, fully realizing that mine may be a lone cry, but in the hope that whatever truth there is in the appeal, if any, may survive.

So much has been said about scientific management that a restatement hardly seems necessary; and yet I venture to make it because I believe that the application of scientific management to commercial enterprises is new, and because an authoritative account of what scientific management is not and what it is, appears to me to place us in a position to proceed with our subject.

It will be generally agreed, I think, that Dr. Frederick W. Taylor is an authority upon the subject. From his testimony before a congressional investigation held in 1912 I quote as follows:

> Scientific management is not any efficiency device, not a device of any kind for securing efficiency; nor is it a bunch or group of efficiency devices. It is not a new system of figuring costs; it is not a new scheme for paying men; it is not a piece-work system; it is not a bonus system; it is not a premium system; it is no scheme for paying men; it is not holding a stop-watch on a man and writing things down about him; it is not time study; it is not motion study nor an analysis of the movements of men. . . . . It is not divided foremanship nor functional foremanship; it is not any of the devices which the average man calls to mind when scientific management is spoken of. . . . . I am not sneering at cost-keeping systems, at time-study, at functional foremanship, nor at any new and improved scheme of paying men, nor at any efficiency devices, if they are really devices that make for efficiency. I believe in them; but what I am emphasizing is that these devices in whole or in part are not scientific management; they are useful adjuncts to scientific management, so are they also useful adjuncts to other systems of management.
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> Now in its essence, scientific management involves a complete mental revolution on the part of the working-man engaged in any particular establishment or industry—a complete mental revolution on the part of these men as to their duties toward their work, toward their fellow-men, and toward their employers. And it involves an equally complete mental revolution on the part of those on the management's side—the foreman, the superintendent, the owner of the business, the board of directors—a complete mental revolution on their part as to their duties toward their fellow-workers in the management, toward their workmen, and toward all their daily problems. And without this complete mental revolution on both sides scientific management does not exist.
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> The great mental revolution that takes place in the mental attitude of the two parties under scientific management is that both sides take their eyes off the division of the surplus as the all-important matter, and together turn

their attention toward increasing the size of the surplus until this surplus becomes so large that it is unnecessary to quarrel over how it shall be divided. . . . .

The substitution of the new outlook—this new viewpoint—is of the very essence of scientific management, and scientific management exists nowhere until after this has become the central idea of both sides. . . . .

The present condition of things in distribution is very nearly the same as in production when not under scientific management. The salesman's job is his to execute very much as he thinks best. Salesmanship is supposed to be a gift from heaven, and all that is now considered necessary is to have some knowledge of the product, and experience in handling men. Oftentimes salesmen begin business life as office boys and work up. Others, more fortunate, begin as junior salesmen. Comparatively few have had educational training beyond the high school. Many commence selling without any training in salesmanship. Whatever merit they acquire is gained in the "University of Hard Knocks." Some of the larger concerns maintain schools of salesmanship and there are independent schools, but most of these, by force of conditions, are devoted chiefly to imparting quickly the "knack of selling." If there be such a science as the science of salesmanship, it is not yet developed. Small concerns cannot afford the expense of scientifically trained salesmen and the large concerns recruit their forces chiefly from successful, self-trained salesmen coming from outside. In general, therefore, things are pretty much as they have been.

And yet the present conditions in the commercial world differ somewhat from the conditions in the industrial world. There has been more co-operation between management and salesman than between management and workman, and salesmen have shared in the profits more generally than workmen. There has not been constant warfare. The mental attitude of both management and salesman has on the whole been different from the mental attitude of management toward workmen and *vice versa* in the industrial world. But while these differences have been somewhat less, the principle upon which merchandise is now distributed is the old principle of the rule of thumb with slight modifications due to modern devices. However, the basic principle of substituting exact knowledge for guesswork is not widely recognized.

The question now arises: Is there a science of salesmanship? Science has been defined by President Maclaurin of the Massachusetts Institute of Technology as "the classifying and organizing of knowledge of any kind." Assuming that we may accept that definition as authoritative, the science of selling consists in classifying exact knowledge of market conditions by which we can create demand and predict the future, getting the product at the lowest cost, and delivering the product to the market at a profit, that is, organizing exact knowledge into a commercial enterprise.

How many producers have collected and organized all the knowledge of salesmanship in their businesses and reduced the knowledge so far as possible to laws and rules? How many have made a scientific selection of salesmen? How many have brought together salesmen scientifically selected and a product scientifically selected? How many have almost equally divided with the salesmen the responsibility for selling their product?

Those who admit that, so far as product and the selection of salesmen are concerned, the principles of science may apply, still frequently oppose the application of scientific management to distribution upon the ground that the disposal of merchandise depends to a large extent upon the human elements involved and that these cannot be reduced to laws and rules. To a very large extent the salesmen themselves are responsible for the fixity of this idea. Usually they seize upon every opportunity to impress this notion upon the management. They regard it as their stock in trade. Their customers are theirs because they have known them, frequently for years, and because of the skill or knack with which they deal with them. A case of this sort of proprietorship on the part of a salesman recently came to my attention. The entire private data of two of a company's most important contracts, constituting a large part of the business, were carried in a memorandum book in the pocket of a salesman and were to be found nowhere else. Often intimate relations are established between salesman and customer and this is supposed to settle matters and Jones the salesman is regarded as the only one who can deal with Smith the customer.

Jones sells the merchandise. Every year he makes two business trips which take him away from headquarters and out of close touch with his employers for three months at a time. I know of one salesman whose regular trip takes eleven months. Like the workman in the factory, he is left pretty much to himself. The salesman's customers are his to deal with as he likes, provided he gets proper prices and what seem to be reasonable orders. But who in the management really knows whether or not the salesman gets adequate orders? As in the case of the factory, the management contents itself with a general oversight. Many salesmen rarely hear from their managers except upon routine matters or complaints, or when new lines are opened. Of constructive help by the management in planning in advance precisely the kind of work to be done by the salesman at a given point and preparing the way for him—of such help none is given. The point of all this is that the management does not personally take part in the responsibility of soliciting orders.

In many of its elements, therefore, it seems to me that the condition in which we find commercial enterprises today is almost exactly the same as that in which we find factories before they are brought under scientific management. Most of us know that when experts are called in to reorganize a business, their findings usually show among other items: high cost of production due to lack of knowledge of actual costs, waste of material due to imperfect organization, poor financing, and inefficient sales force. Plans for decreasing or eliminating the troubles on the production side are easily presented, but the matter of inefficiency on the sales side is frequently disposed of by recommending a change in sales managers. "If Sales Manager Jones cannot sell the goods, get someone else who can." That is the attitude. In this you will not find a recognition of the principle that the management ought to share directly in selling. The management supplies the goods, but Jones must sell them. How to secure the maximum of efficiency in selling is not planned in detail because of the general belief that the personal equation is not subject to laws and rules which can be laid down as the result of investigation, selection, bringing together both sides of the equation, and attempting to solve the

problem by an almost equal division of the work between the management and the salesman.

A large part of the science of selling lies in getting the product. This we see clearly in the department stores where the chief effort is centered in the buying. The buyers are the heads of departments who purchase for their departments. They constitute the backbone of the business. Their work is chiefly that of estimating the future. In all commercial enterprises, estimating the future accurately is a very considerable part of selling. To estimate the future as accurately as possible, we must estimate accurately both product and prices. How can such an estimate be made unless exact knowledge be obtained? Unless we have gathered all the knowledge of the market for our product, selected the product as a result of our accurate knowledge of it, brought together the scientifically estimated product and the scientifically determined demand, and shared personally in the responsibility of bringing this demand and supply together—unless all this has been done in the past, how is it possible to estimate the future with a reasonable degree of accuracy?

In answering this question by the help of scientific management, let us ascertain what would be the steps to take.

The first step is to gather in all the vast amount of knowledge of salesmanship and of the skill acquired in many years of experience, which has been in the past only in the heads of the salesmen. The work of gathering this knowledge of salesmanship, of recording it, of tabulating it, and finally of reducing it, as far as possible, to laws and rules, is assumed by the scientific managers.

In this work, specialists in the science of salesmanship are employed. These are men with rigorous training in general science followed by training in salesmanship. A sales planning-room—not unlike the planning-room of the factory—is established and the work of gathering exact knowledge of the business is carried on in a similar way, except that now we are dealing oftentimes with less tangible things—human beings. These must be brought as closely as possible under control by careful planning. In the sales planning-room, a map of a section of country is treated very much like a drawing for work to be executed in the factory, but

in this case the study is of people and of conditions as well as of material.

An important part of our work deals with the scientific study of the market and with such adaptation of our merchandise to our market that it will be possible to reach the maximum of consumption. There is a point beyond which it is impossible for a market to advance, and our scientific manager knows this and governs his course accordingly. In one section of the country the ability to purchase may be rising, while in another it may be falling, and these sections may not be widely separated. Much money has been lost in extending credit in localities which have not sufficient purchasing power. Much money has been lost by advertising in localities in which the purchasing power was falling. It is the business of the sales planning-room to know when a period of depression is approaching a given locality and when a boom has reached its highest point.

And the sales planning-room studies not only the salesmen and dealers, but also the consumers. Science work of this kind is carried on with a view to teaching the dealers how to increase consumption. This might be called functional salesmanship. It is undertaken by the regular staff traveler as far as practicable, but when not practicable a special functional salesman is sent out by the sales planning-room to develop the whole subject of sales in the section, that is, to create the demand and set in motion the machinery for supplying it properly.

The mental attitude of the dealer is favorable to our purposes. By experience he has found that we are his friends and that we know how to help him to sell more than he ever sold before and consequently to make more money than he ever made before.

I am familiar with a business in which functional salesmanship is carried on harmoniously and with great success. When a salesman finds difficulty that he cannot overcome, he notifies his company at once and a functional salesman is sent to help him. The functional salesman is a man of greater experience and ability —one advanced from the traveling staff. In some cases I have known of two functional salesmen working with the regular salesman on one order. Each had his special place in the scheme and

all worked with great enthusiasm. Under scientific management the regular salesman welcomes the assistance of the functional salesman because it is the first purpose of both to increase the sales, and the personal success of one does not interfere with the personal success of the other.

The second step is made by the scientific selection of salesmen and their progressive development. In order to do this the management must deliberately study the character, the nature, and the performance of each salesman to learn his limitations and, what is more important, his possibilities for development. This done, the scientific manager deliberately proceeds systematically to teach the salesman and make it possible for him to advance until he can do the most profitable class of selling for which his natural ability fits him. The practical advantage of this lies in raising the general average of sales per salesman. Every sales manager will testify that under similar conditions of territory, product, management, training, and experience salesmen vary greatly in their total sales. They vary sometimes from $10,000 to $100,000. If scientific selection should replace the $10,000 salesmen with $100,000 salesmen, it is easy to calculate the enormous increase in net profits.

I once asked a remarkably successful sales manager how long it took him to determine whether or not a salesman was successful. He replied that in his business it took a year, that there were many failures, and that much time and money was wasted. He said further that the men whom he expected to succeed frequently failed and that the men whom he expected to fail often succeeded. As he expressed it, "You never can tell."

Without scientific selection you never can tell, but with the standards established by scientific management you can predict successful salesmen with a high percentage of accuracy and thus prevent this great waste in time and money. The cost of getting together twenty-five efficient salesmen by the present hit-or-miss method might readily amount to $100,000, to say nothing of the waste of time, energy, and lost opportunity for profitable sales. Scientific management would prevent much of this loss.

The third step consists in bringing the science of selling and the

scientifically selected salesman together. This means that the work must be so organized that it shall be the duty of someone to see to it that sales are made in accordance with the principles of the science, and since the management now almost equally shares the responsibility for promoting the business, someone must be appointed to see that the management performs its new duties fully and conscientiously and that the salesmen perform their new duties in the same manner. Unless my prediction fail, the most difficulty will be found in bringing the management, rather than the salesmen, into line.

The fourth step involves an almost equal division of the actual responsibility of selling, between the salesman and the management. Divided salesmanship is regarded very much as was divided foremanship. Many sellers believe it to be impossible. Practically the same arguments are made against it that were made in the factory against divided foremanship. Nowadays, as has been stated, it is common practice to throw all or nearly all of the responsibility upon the salesmen. They are left very largely to their own devices. Under scientific management divided salesmanship is a division of responsibility and results in the constant and active co-operation by the management in the work of selling.

Again, as in the case of the factory, probably great objection will be made by the salesman. He will behave very much as did his brother in the factory. Much patience and skill must be exercised, and rapid progress should not be expected. Beginning by selecting one salesman, teaching him, and showing him that he is personally benefited, that he sells more and earns more, it will not be so difficult to bring other salesmen under scientific management. The younger men will be ready enough to undertake to do what is wanted. The difficulty will come from the older men who have fought their way up and who are justly proud of their success. Oftentimes they are entirely satisfied with their success, and endeavor merely to maintain their volume. Sooner or later, however, all salesmen are bound to recognize that the new methods bring greater results.

But this takes time, of course. The work of the scientific manager goes on from year to year and must be pursued in distri-

bution as unremittingly as in production where it usually takes several years to bring about the condition of scientific management.

In the case of a traveler, the field must be studied with reference to the product, the salesman, and their relations to each other. A time study of the field and of the salesman should be made. Certain elements of the process of selling can be reduced to laws and rules; for instance, when to solicit business, when not to solicit, how to solicit from Brown, how to solicit from Smith, determination of the methods of approach by recorded analysis and experience, when to advertise, when not to advertise, the advertising appeal, the business interview, classification of dealers, classification of consumers, periodicity of reorders, etc. Taking only one of these items for illustration, a recent case came to my attention where reorders had been increased 29 per cent under scientific management with negligible expense.

An almost equal division of the work between the management and the salesmen means also that ways must be found to help the dealer to increase the distribution of his merchandise. Proper advertising is desirable, but advertising alone will not help in this case. Advertising sometimes fails because the power to buy has diminished, and when it fails, both the manufacturer and the merchant are usually helpless. One of the national advertisers in reply to a question as to what he would do if his volume of business began to fall off, replied, "Increase my advertising." If he had replied, "Increase my advertising in certain places," he would have saved a great waste of money. But he did not know where purchasing power was rising, normal, or falling, and therefore when demand lessened he increased his advertising everywhere.

A scientific examination of the locality in connection with the study previously made of the business itself will tell us which of our tested methods to apply to make the merchant most effective. The merchant has not the ability to make a science study of his own business and reduce it as far as possible to laws and rules. That many merchants do not even know how to dispose of their surplus stock is proved by the rapid increase in the number of specialists who organize sales on a percentage basis and turn the

surplus stock into cash, a proceeding which the merchant himself is utterly incompetent to bring about.

Preparing the local market to consume the goods is another duty of the scientific manager. This has been attempted for many years, but usually only in one way—advertising. Preparing the dealer by teaching him what to do to get more trade, preparing his store by properly locating it on the best side of the best street at the best point for the purpose, and arranging stock and displays in the way to sell most goods, and preparing the consumers by applying the methods which stimulate demand—these are the duties of the scientific manager. Naturally the element of expense is a large consideration, but what does it matter so long as the cost of selling, due to increased volume of sales, is reduced? None of our plans will be successful unless the cost of selling is reduced.

The efficiency of the small dealer is a matter of great concern from every point of view. Almost invariably he does not know how to increase his trade and has not the ability to find a way. The question is how to make him distribute merchandise properly. In other words, how can the small dealer become an efficient distributor? It is the old question that was continually asked in the factory—How can the workman be made more efficient? At present, conditions in the small store are wretchedly unsatisfactory, but conditions might be radically altered and improved under a system of scientific management in which the producer or wholesaler should act as a sort of functional foreman and teach the small dealer how to attain the highest degree of efficiency for which his natural ability fits him.

It is not to be supposed that much time or expense can be devoted to this matter or that great changes can be brought about quickly; but the volume of distribution of product can be greatly increased by means of the device of the sales planning-room and the scientifically trained salesman who teaches the dealers how to increase distribution, and, in some cases, through visits to the dealer by functional salesmen assigned to work out the problem of distribution of the locality and set in motion the proper methods. Quite naturally the small dealer must wait his turn. His case cannot be taken up until larger matters are disposed of successfully.

The efficiency of the large dealer is of much more immediate interest because in his case the possibility of applying the principle of scientific salesmanship is financially practicable and because results can be measured more quickly. Particularly favorable opportunities are offered by concerns having stores in more than one city, or by manufacturers whose product is sold exclusively by independent stores in many different places. Under such conditions it is possible to make direct comparisons of men, methods, expenses, etc., under varying circumstances. The large department store also offers a good chance to show what can be done by the intensive application of these principles. As I have observed such stores in most of our large cities, I have often wondered with what astonishment their proprietors would view the receipts of a day's sales made under scientific management. Of the science of salesmanship there is little evidence except in a very few department stores and these appear to me to afford an excellent example of lop-sided effort and half-completed enterprise.

It should not be expected that changes from the old to the new ways of doing things can be made quickly. Even with the best intentions people are slow to change their habits and it is easy to slip back into the old ruts. Undertaking scientific management often means that habits of many years must be broken. It would be a great mistake to attempt this too quickly, because scientific management is a mental growth and only normal development should be expected. The introduction of the new way of doing things must be gradual and the benefits must be demonstrated as we go along. But when all these laws and rules have been applied through the intimate and hearty co-operation of the management and the salesmen and the dealer, that is, when there has been a complete mental revolution on the part of the management as to its duties and on the part of the salesmen as to their duties, when this new viewpoint has been established—the result of all this, in my judgment, will show a marked increase in the personal prosperity of the salesman and in the volume of sales per salesman, and a marked decrease in the cost of selling.

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THE RELATIONSHIP OF SCIENTIFIC MANAGEMENT TO LABOR

The problems identified with the development of our industries will undoubtedly be viewed and analyzed from as many conflicting angles as there are classes in the community. The manufacturer, the business man, the professional man, and the working-man, each will have a different viewpoint; each will reach a decision influenced, to a greater or lesser degree, by his own self-interest. The final solution will be found, not in the dictum of any one of these classes, but in the equitable and harmonious combination of every one of them. I admit, beforehand, the difficulty of securing such harmony, but I am strongly of the opinion that an exchange of views and their unbiased consideration and discussion by an assemblage of this kind will go far to promote it.

It is as a member of a trade union composed of skilled mechanics that I am endeavoring to examine and analyze "scientific management" in its relation to labor.

This system for the increasing of production, popularly called scientific management, is a subject of sufficient importance to the wage-earner and the industries of our country to warrant the careful examination of all thoughtful men, for, in addition to the problem of production, it involves the workman's standard of mechanical efficiency, his physical welfare, and his social status. If scientific management in its final analysis fails to increase the workman's earnings, develop his mechanical ability, lengthen his period of usefulness, elevate his standard of living, and distribute equitably between capital and labor the gains from increased productiveness, it has failed to deserve the title conferred upon it.

With the object of avoiding any confusion of terminology in the discussion of the subject, the following definition is submitted:

Under the name scientific management, we have in mind those methods for increasing production which have been advocated within very recent years by several gentlemen who are recognized as among the most prominent advocates and exponents of systems for the standardization, systemization, planning, and routing of

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work in manufacturing establishments and in offices, the grouping and operating of machines to their greatest efficiency, coupled with time studies of manual movements, the elimination of unnecessary motions by employees while at work, and their stimulation to greater effort by piece-work, bonus, task, differential, premium, or other systems, rather than by a daily wage rate.

Any system which will lower the cost of production by eliminating inefficient management or unnecessary labor through the adoption of more practical methods of operation should be welcomed and encouraged; for inefficiency in any form can result only in placing a needless burden on the cost of production and, to whatever extent it exists, must correspondingly retard the progress of industry and the production of wealth. Whether in the machine or in the workman himself, all motions which do not accomplish definite and practical results, all unnecessary movements, result only in wasted energy, and wasted energy is a dead loss. With any system which will eliminate useless labor the American trade-union movement will be found in full accord.

From an examination of scientific management as presented in the books prepared upon the subject by some of its best-known advocates and exponents, it would appear that it aims to secure greater production from machinery and workmen, (*a*) by systematizing, standardizing, and overseeing all work, by speed, repair, inspector, and gang bosses or functional foremen and over-foremen; (*b*) by having time studies made by experts with split-second watches in hand, with which to note the time consumed in performing each motion made in connection with the work; (*c*) by having studies made with the object of eliminating all useless motions so that production can be increased; (*d*) by having the time to perform a given piece of work determined by an expert from the records secured; (*e*) by the minute subdivision and specialization of the work, and the employment to the largest degree possible of laborers trained to work under the system of subdivision and specialization, rather than the employment of skilled mechanics; (*f*) by the payment of a bonus or premium to workmen for measuring up their day's work to the task set, and the payment of similar inducements to the foremen and over-foremen for maintaining the

quantity of production of the gangs of workmen, or the departments under their charge.

As presented in the works upon the subject, scientific management as applied to workmen moves with the smoothness of a well-oiled and perfected machine: each one performs his part with the accuracy of a mechanically and mathematically perfect tooth on a gear wheel, when it meshes with the teeth of another wheel in transmitting power. But whether this system accomplishes with workmen in everyday practice what it seems to accomplish with them in books is a question which we desire to investigate.

Before entering into an examination of the relationship of scientific management to labor, there is one fact which is deserving of consideration in connection with the discussion. The American workman, as verified by the great mass of statistics upon the subject, produces more within a given time than the workman of any other country. He has no equal as a producer; this being due partly to his mental and physical alertness and ambition, and partly to the various systems of specializing and speeding up which were well developed before scientific management was brought forward as an industrial stimulant. That he has worked under such high pressure as prematurely to age him has been well demonstrated by the policy of many corporations to hire no workman over forty years of age or one whose hair is tinged with gray.

High tension and intensity of application have become marked features of our industries. Machinery is operated to its physical limit, and when worn out is thrown on the scrap heap; workmen, likewise, are expected to work to their physical limit, and, like the worn-out machines, they, too, are liable to find themselves in the industrial scrap heap when there should still be years of effective labor in their minds and bodies. As illustrating this tendency in our American methods of production there is the illuminating testimony given by Mr. Harrah, of the Midvale Steel Company, before the Congressional Committee on Labor, March 1, 1900. A portion of the committee's record for that date reads thus:

MR. GRAHAM: "I was going to ask whether you thought that you could put your machines so as to accomplish getting out more work in eight hours than you can now in ten?"

MR. HARRAH: "No. The machines are worked to their fullest capacity now."

MR. GRAHAM: "You would have to get some kind of improved machinery?"

MR. HARRAH: "We have the most improved kind of machinery now; but we make it a rule to run a machine to break. For instance, the life of a hammer bar may be two years. If that hammer bar does not break within two years, I go for the forge master, because I know he is not getting the work he ought to out of the forge. It is the same way in the machine shop. If a lathe, the natural life of which might be two years, does not break down before that, I would go to the engineer in charge."

MR. GRAHAM: "Everything is run to its full capacity now?"

MR. HARRAH: "Absolutely. Yes, sir; we have absolutely no regard for machinery or men."

The Midvale Steel Company is one of the plants where scientific management was first applied by one of its leading exponents.

Instead of burdening this paper with additional evidences of the intensity of labor in this country, the impressions of two of the world's greatest thinkers as to its effects will be submitted.

On the occasion of his last visit to the United States, that eminent philosopher, Herbert Spencer, after noting the intensity with which our toilers were working, declared that the time had arrived to preach and practice "The Gospel of Relaxation." Last year another famous British scientist, Sir Thomas Oliver, visited our shores. After attending the Congress of Hygiene at Washington, he visited a number of our industrial centers, expressing some of his impressions later on, in part as follows:

> Generally speaking, work is rushed too much and life is lived at too high pressure in the United States. There is no reason for either. Work and the love of work for the monetary gain it brings are more characteristic of Americans than of most other people, and yet what is the gain if life is shortened by the strain imposed upon it in trying to obtain these? A nation whose workmen are old at forty is certainly not only not rich in men, but it is not doing its best for them.

That the American workmen are now working at higher speed and producing more within a given time than the workmen of any other country, we are confident cannot be successfully questioned.

With these brief preliminary thoughts, we may proceed to examine more carefully scientific management in its relation to

labor, as its influence and effect upon labor are of more importance than any other feature it may possess.

While scientific management in some of its phases has entered into the most minute details, on some important factors connected with production it touches but lightly and indefinitely, while other equally important ones are practically ignored. This last is particularly true of its attitude toward workmen, the flesh-and-blood human beings who are to be developed into semi-automatic attachments to machines or rigid and inflexible forms of directing production, if one feature of this system is to be applied.

The efficiency of a workman is not to be determined solely by his ability continuously to feed and operate a machine or perform some other task with a never-changing motion at high speed, acquired as the result of time and motion studies by those who may be employed as experts in this work. To a very large extent his efficiency will depend upon his alertness of mind and physical responsiveness, and his ability to maintain both under the numbing influence of his monotonous task.

During recent years there has scarcely been a convention of employers at which papers have not been read bewailing the difficulty of securing competent mechanics, and proposing plans by which mechanical knowledge among workmen may be increased. Trade unions have been unjustly accused on the one hand of preventing apprenticeship, while on the other, and in contradiction of that charge, an effort is made to discover the reasons why the boys of the rising generation seem unwilling to apprentice themselves in the trades. So strong is this disinclination on their part that during the past decade the wages paid to apprentices have been practically doubled, and yet in many industries it is most difficult to secure or retain apprentices. It is our opinion that the intense specialization and subdivision of work as developed in our American systems of production is the most prominent cause; for the boys and their parents have come to believe that apprenticeship in most cases does not mean the development of mechanics, but rather the production of specialists who are skilled only in some simple process into which the method of production has been subdivided, and who are unable because of their lack of mechanical and manual

skill to hold their own as journeymen mechanics on the termination of apprenticeship.

In Germany, that country which today stands out so prominently as a land where all-embracing scientific methods are applied, the workmen have reached a degree of efficiency which makes them the peers in mechanical ability of those of any other nation; and this efficiency on their part is the result of the broad and thoroughgoing mechanical and theoretical education which they are given as apprentices, and the opportunities which are afforded to them afterward as mechanics to become familiar with the theory as well as the practice required in the industry in which they are engaged.

Through their co-operative courses, in which the coming generation of engineers are being educated, our leading universities are recognizing the principle that theoretical knowledge must be supplemented by practical experience in the industries during the course of study, if the highest efficiency is to be attained. And likewise the manufacturing establishments are learning that well-equipped superintendents and foremen cannot secure satisfactory results from workmen deficient in mechanical skill and knowledge.

Advocates of scientific management will contend that it is not their intention to speed the workman to his extreme physical limit, and it is quite possible, by quoting detached expressions from their works on the subject, to give a color of truth to this contention. But no practical man acquainted with the methods of production and the influences which emanate from the management of a corporation through the superintendent, foremen, and sub-foremen to the workmen, to stimulate their productivity, will fail to realize that, even though the system of scientific management with its time studies, its precise form of organization, and its premiums and bonuses to workmen and foremen for quantity in production, was established in any plant by the best trained and most just experts and with a proper care that no workman should be driven to speedy physical exhaustion, it must soon degenerate into a system under which each workman would be forced to labor to the physical breaking-point or drop out to make room for others whose vitality had not yet been exhausted.

In fact, in the well-known reference to the laborers in the

Bethlehem Steel Works, Mr. Taylor, in his book on *Shop Management*, says: "The tasks were all purposely made so severe that not more than one out of five (perhaps even a smaller percentage than this) could keep up."

Perhaps no one has had a greater opportunity of studying the effects of various systems of shop management on the workmen employed than Judge Higgins, president of the Court of Conciliation and Arbitration for the Commonwealth of Australia, and as his views on this question are most valuable in connection with the subject now being considered, a few excerpts from a recent decision which he prepared are submitted. The case was one arising in the shoe industry and those portions of the decision having a direct bearing on the present subject read:

> The claim of the employees in these proceedings as to apprentices is, in effect, that there should be no boys employed unless apprenticed to learn some substantial portion of the work of a factory; that there should be no "improvers," that the number even of apprentices should be limited to one apprentice to every four journeymen; that the wages should be settled for each year of apprenticeship, and that the apprentice should be properly taught.
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> I am glad to see that the claim makes, in the main, in the direction of industrial efficiency. At present all the conditions of boy labor in this great Australian industry tend in the direction of inefficiency, and as the men trained to make boots by handwork, from start to finish, pass from the trade, there is every prospect that in place of intelligent, skilled artisans the commonwealth will have thousands of anemic, ill developed, undertrained factory slaves, youths unfitted for any work but the feeding of some one insatiate machine, youths prematurely put under the strain of bread-winning, and soon to be replaced by other youths, ad infinitum.
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> The employees want, as far as it is possible, to eliminate improvers, to prevent the existence of such a class at all, to stop this pestilent manufacture of imperfect tradesmen. They want to prevent capable workmen of average capacity from being put out of work by men who submit to work for a smaller wage on some ground of incapacity, generally actual, sometimes only alleged.
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> From the point of view of this court, whose ideal is industrial peace, I feel even more strongly than before that the system of improvers, as it now stands, is a perpetual menace to the peace of the community.
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> Another point is that the improver is often kept exclusively for many years to one single machine of the simpler class, until he becomes extraordinarily apt to it. His speed is an argument for greater speed on the part of those before him and behind him in the team of men and boys working at some process. The worker before him must keep him fed with stuff; the worker

after him must not let the stuff accumulate; and the strain becomes intense. The specialized improver is often used to force the pace. But if the improver lose his little fraction of a job he is useless for any other job; to get a similar job elsewhere he must fight; his only weapon is to offer to submit to a reduction of wages, and inevitably he forces down the claims of the journeymen who are looking for work.

But what is the proper remedy? Or, rather—as my functions are limited—what is the proper order of this court to make under the circumstances? I cannot undertake the responsibility of telling every employer in the commonwealth what he ought to do in case of every employee at every stage on every day of his employment, and under all circumstances. I conceive it to be my duty to leave every employer free to carry on his own business on his own system, that he may make the greatest profit within his reach, so long as he does not perpetuate industrial trouble or endanger industrial peace; and that means so long as he satisfies the essential human needs of his employees and does not leave them under a sense of injustice.

In the strain of competition, the pressure on the employer is often very great, and he ought to be free to choose his employees on their merits and according to his own exigencies, free to make use of new machines, of improved methods, of financial advantages, of advantages of locality, of superior knowledge—free, in short, to put the utmost pressure on anything and everything except human life. Unless there is to be industrial war at every turn, human life must not be treated in the game of competition as if it were a ball to be kicked. This, the most valuable asset of the state, must be protected, whatever else suffers.

Extreme specialization injures the boy in his manhood and as a tradesman; and it is the cause of much industrial disturbance. Extreme specialization may make the output greater and cheaper, and may at the same time be injurious to the man and to the public.

The human factor cannot be ignored in the industries. Today the wage-earner's stimulation to greater physical exertion has been highly developed through the constant pressure brought to bear upon superintendents and foremen. Elaborate cost sheets are prepared monthly by every department, and those showing the lowest cost for production in similar departments are sent to the superintendents of those which show a higher cost, with the polite request: "Please report to us on the reasons why your department shows a higher cost for production during the month than Department A." Under this stimulus there generally is but one course pursued, that being to speed up labor.

Under the great concentration which has resulted in huge cor-

porations the former bond of personal interest between employer and workmen has disappeared; neither now knows the other; the one is only a number on a brass check or card, and the other may live a thousand miles away. The one who holds a brass check is forced to realize his position by the treatment accorded him by a foreman spurred on by the desire to secure a bonus for the large output of his department, and by the rigid discipline to which he must conform and the promptness with which he is discharged for any reason. Under present methods of production, where thousands of workmen are employed by a single corporation, it may be difficult to reintroduce the element of human sympathy between workmen and employer, but a truly scientific system of management cannot overlook this most important factor if it is to endure.

One feature of scientific management which has interested labor is its evident opposition to collective bargaining between organized workmen and their employers. The claim is practically made by some of its leading exponents that the system cannot be successfully applied unless the huge corporation insists on dealing with the workman as an individual and then on bringing every possible pressure, including discharge, upon him. A brief extract from a letter, which we were informed was written by one of the most prominent exponents of scientific management, to a firm which had tried the system for six years without success, bears witness to this fact. It read:

> Have you tried the incisive plan of centering on one man instead of going at the whole shooting match at once? I think the failure is due to the lack of patient persistence on the part of the employers, and then to the lack of centering right on to a single man; no workman can long resist the help and persuasion of five foremen over him. He will either do the work as he is told or leave.

The implication is not difficult to grasp.

Where the large corporations have had a free hand in centering their stimulus to activity upon the individual workman and determining the conditions under which workmen will be employed, they have frequently accomplished results which, while probably showing increasing production per man have also developed conditions of labor which have shocked the moral and humane sense of the nation. An illustration is afforded by the iron and steel industry

which, according to the report of the Federal Department of Labor covering the month of May, 1910, indicated that 29 per cent of the 172,706 workmen included in the investigation, worked twelve hours per day, seven days in the week—eighty-four hours in all; and that every second week, when the shifts changed from day to night, or vice versa, many of these workmen were forced to remain on duty without relief from 18 to 24 hours. Of these 172,706 men, who included all unskilled and skilled workmen in the plants where investigations were made, 85,812, or 49.69 per cent received less than 18 cents per hour.

Practically every abuse, every arbitrary and unjust condition affecting workmen which has crept into our industries, has developed only where the workmen failed to enjoy the right of collective bargaining with their employers for the determination of the wage rate and the conditions under which labor was to be performed.

The specialization and subdivision of work, which as much as is possible tends to make the workmen specialists, that is to say, fractional mechanics, whose knowledge of a trade or industry is confined to but a few simple operations, is anything but a scientific method for developing and maintaining the necessary supply of mechanics, and in this direction scientific management seems to be most eminently unscientific.

It is unscientific because it does not include an adequate system for the education of apprentices from whom competent mechanics can be developed.

It is unscientific because it does not adequately provide for the workmen's progress in mechanical knowledge, but tends to restrict him to the subdivision of a specialty, keeping him endlessly performing the same operation, disregarding the fact that this constant repetition, which in time becomes semi-automatic on the workman's part, through its very monotony numbs the mind instead of inspiring it.

It is unscientific because if applied in all of our industries it would at once prevent the development of competent mechanics, and produce in their place fractional mechanics, who could work effectively only under the groups of functional foremen and superforemen provided for by the system.

It is unsafe as well as unscientific, inasmuch as its tendency is toward the production of quantity rather than quality. The number of bricks which can be laid in a day is one thing, the strength and durability of the wall being an entirely different matter. The number of steel rails which can be run through the rolls in a day may be an interesting item in the matter of production, but of far more importance to the public is the ability of these rails to stand the burden of traffic, instead of breaking under strain they should have been able to stand, and ditching the train with its passengers.

On this question of steel rails, the statement of Mr. M. H. Wickhorst, engineer for the American Railway Association, is valuable. In his paper on "Rail Research by Railroads and Producers," presented at the recent International Congress for Testing Materials, he said in part:

> While the railroads were thus busy increasing the capacity of their motive power and cars, the steel mills were likewise endeavoring to secure increased tonnage. These efforts took the form of eliminating unnecessary delays, installing larger converters and more powerful machinery, and using larger ingots, and, sometimes, of allowing less time for the chemical reactions. At the height of the tonnage endeavor in the rail mills, about five years ago, there was considerable rivalry between the different mills to produce the greatest tonnage, and it reached a condition that might almost be termed madness, that had only secondary regard for the quality of the product. The purchaser had the choice of buying rails as made by the mills or going without them.

It is unscientific because it has failed adequately to understand the human factor and the spirit of our American institutions, for it makes of one man a taskmaker and a taskmaster without the free consent of the other. It ignores that principle so clearly set forth by the congressional committee, which, after investigating the Taylor and other systems of shop management, said in its report: "Government in a mill should be like government in a state, with the consent of the governed."

Scientific management thus seems to lay greater stress upon the quantity of production than upon its quality. It seems to give consideration to workmen more as units in production than as human beings; and in the unbridled efforts to increase production being made in many industrial establishments today it must

tend to approach as closely as possible the methods of those ancient Egyptian taskmasters who finally endeavored to have bricks made without straw.

In these respects in connection with its relation to labor, the term "scientific management" seems to be about as accurate as the name given to that little animal which has been the subject of so much scientific experimenting, the guinea-pig, which in the first place does not come from Guinea, and in the second, is not a pig.

To the experiments which may be made in the name of science to discover the highest speed which a machine can attain, its greatest capacity for production, and the minimum length of time in which its usefulness can be exhausted before it is discarded and thrown in the scrap heap, labor has no objections, but American workmen will object with all the strength at their command, and justly so, to all efforts to experiment likewise with them. With improved shop equipments and more efficient systems for routing, handling, machining, and assembling material in the course of construction, we are in harmony. But we are in most positive opposition to the application or continuation of any system which tends to deteriorate the American workman mentally, morally, or physically.

Organized labor believes that true scientific management is that which reduces the cost of production by eliminating useless labor, which improves the facilities for doing work by surrounding the workmen with good light, pure air, sanitary conditions, and safeguarded machinery. It is a system of management under which care will be taken to prevent workmen from overstrain as well as to provide that their output shall reach an adequate standard, and which will afford ample opportunity for the fullest development of mechanical and manual skill on the part of all workmen. It is a system under which the terms and conditions of employment will be governed by agreements entered into by employers and their workmen as a collective body. And finally, it is a form of management which will never allow quality to be sacrificed for quantity, nor men, women, and children to be classified with machines. The equity right of human flesh and blood must be recognized by any system that would endure.

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SUBSIDIZED UNEMPLOYMENT INSURANCE

Granted that unemployment insurance is necessary, is it possible? For many years this question was asked by most authoritative students of the subject, and the answer was not always favorable. Various experiments were made by municipalities and voluntary organizations in different countries, and some of them suffered a dismal failure. The establishment of a national compulsory unemployment insurance system in Great Britain through the National Insurance Act of 1911 seems to settle the abstract question of possibility. Surely that which exists is possible, aside from the degree of success it may have or failure it may suffer. But the very fact of this prolonged discussion, through almost two decades, of the general timidity in making experiments, in the face of the rapid development of other forms of social insurance, and of the failure of several of these experiments—though the word "failure" could not be applied to any other steps in this field of social legislation—is evidence that there are special difficulties in the path of unemployment insurance which are not met with in the case of accidents or disease.

In what do these difficulties consist? It is the theory of insurance science that any risk may be insured provided there is any regularity at all about its occurrence. It is the pride of that famous English insurance institution, Lloyds, that it offers to insure against any risk, even of an unusual kind, which does not seem to manifest any regularity. Unemployment is a risk. It demonstrates a fair degree of regularity both in its dependence upon trade and in its time fluctuations, whether in annual or longer cycles.

When the whole problem was investigated very thoroughly by the Imperial Statistical Office of Germany, in 1906, the conclusion was reached that there were no insurmountable technical obstacles for the development of an unemployment insurance system. The real difficulty was stated to be the absence of a simple test of unemployment. With comparatively few exceptions, the presence or absence of an accidental injury may be easily determined. It is

an objective occurrence to be verified by statements of witnesses, and the results may be controlled by expert medical supervision. The same, though perhaps in a somewhat less degree, is true of sickness. Malingering and the exaggeration of subjective systems may occur, but must be the exception rather than the rule.

But the fact of unemployment, or rather, lack of employment—the impossibility of finding employment—lacks that conclusive evidence. Unemployment often is and still oftener may be claimed to be the result of the individual's effort or lack of effort. It may be easily simulated. In other words, to utilize a familiar term of American insurance practice, it is a bad "moral hazard," and sound insurance business avoids bad "moral hazards."

Again, it is claimed that unemployment insurance must have a highly detrimental effect upon the very condition it endeavors to cure; that in depriving the victim of the main stimulus of finding employment, it will increase the total amount of unemployment. This argument, that insurance against a risk must increase the frequency of the risk, is also applicable against any other form of insurance, such as fire insurance. But it is argued that its effect is greater in unemployment insurance because it comes into play after the risk has occurred. The hope of the insurance money may make a person careless of fire prevention, but after the fire occurs the settlement is not a direct factor of another fire. But in case of unemployment, the very fact of the benefit may, it is argued, interfere with the termination of the risk.

Furthermore, unemployment insurance tends to result in an unfavorable selection of risks against the insuring institution. After the average risk is determined, it is the usual practice of every insuring company to exercise strict supervision over the selection of risks, accepting such individuals (or property) as are a better risk than usual, and rejecting those that are a worse than ordinary risk. In this way, insurance is made safe and also profitable. The risk of unemployment is, to a large extent, dependent upon personal factors. The insurance institution may eliminate such trades as have an excessive unemployment risk, but it is difficult to eliminate the individual with an abnormally high unemployment risk.

Finally, it is argued that any system of unemployment insurance faces a serious difficulty when confronted with the conflict of capital and labor. A certain amount of unemployment is voluntary for legitimate reasons, namely, that unemployment, either individual or collective (strikes), which results from bargaining over the wage contract. It is not always easy to differentiate this form of unemployment from others. If unemployment insurance is extended to include this form, it must meet with tremendous opposition from the employing class; if it is not, the opposition will be equally strong on the side of the wage-workers.

That these and similar difficulties are quite real may be readily admitted. But, notwithstanding them, at least one form of insurance—that of the voluntary co-operative kind through the workingmen's own trade unions—has not only proved feasible and successful, but has developed very rapidly during the last twenty-five years. This fact is evidence that the hampering conditions are merely difficulties to be overcome by suitable organization rather than obstacles which would close the path.

UNEMPLOYMENT INSURANCE THROUGH TRADE UNIONS

Out-of-work benefits have always been a natural function of labor organizations. Even if the entire benefit activity of trade unions be considered an adventitious, supplementary feature of an organization whose main purpose is improvement of the conditions of the labor contract, out-of-work benefits are an exception because they are necessary to preserve the very life of a trade union. For a unionist out of work may weaken in his union principles and prove dangerous to the organization. And out-of-work benefits are but one form of unemployment insurance.

The development of insurance in this form has been greatest where the trade unions are strongest—in Great Britain and Germany. In Great Britain the one hundred principal trade unions distributed in ten years (1897–1908) nearly $20,000,000 in unemployment benefits out of a total budget of something over $86,000,000, or 22.8 per cent. Both the actual amount paid out and the proportion of total expenditures devoted to this subject have rapidly increased. In 1904 the amount exceeded $3,000,000. Yet the mem-

bership protected by these benefits was less than 1,500,000 out of a total union membership of 2,500,000 and a total wage-working population of nearly 15,000,000. The building trades, and the metal, engineering, and shipbuilding trades were best protected. In fact, they distributed over two-thirds of the total unemployment benefits.

In Germany, notwithstanding the comparative youth of the trade-union movement, the extent of this activity is equally wide. Out of a total union budget of some $10,000,000, nearly $2,000,000 was spent for unemployment benefits and an additional $300,000 for travel benefits. Some 2,000,000 workers were protected against this risk by co-operative insurance.

In the last issue of the first international publication specially devoted to the study of the unemployment problem,[1] interesting figures are quoted concerning the extent of unemployment benefits given in 1910 by the trade unions of various countries affiliated with the International Bureau of Trade Unions. Though the figures for some of the most important countries, Great Britain, France, the United States, and several others, were missing, the table is nevertheless very instructive.

AMOUNT OF OUT-OF-WORK BENEFITS GRANTED IN 1910 BY TRADE UNIONS IN EACH OF THE COUNTRIES ENUMERATED BELOW

Country	Travel Benefits	Unemployment Benefits	Total
Germany	$241,794	$1,445,974	$1,687,768
Austria	40,147	268,484	308,631
Hungary	6,864	62,683	69,547
Denmark	.....	363,973	363,973
Italy	2,430	344	2,774
Norway	.....	34,618	34,618
Netherlands	196	5,500	5,696
Servia	505	1,299	1,804
Sweden	5,912	62,758	69,670
Switzerland	.....	16,268	16,268
Total for 10 countries	297,848	2,262,901	2,560,749

In most countries the development of this form of unemployment insurance is found to be very weak, both because of the slight

[1] *Bulletin trimestriel de l'association internationale pour la lutte contre le chômage*, II, No. 3, p. 595. The data were as furnished by the International Labor Secretarials. . . . .

development of the trade-union movement and because of the low standard of wages.

In comparison with the extent of unemployment benefits in the British and German unions, the activity of the American unions in that direction is but slight. It is reported that in 1910 all the national unions affiliated with the American Federation of Labor distributed in unemployment benefits no more than $240,717. In 1909, in face of the serious industrial depression the total amount was larger, $535,995.

Thus, unemployment insurance has been realized by these labor organizations in face of all the enumerated difficulties. The important question arises: Why did not these difficulties interfere in any way, or at least in any material way, with its growth? The answer, however, is extremely simple if the nature of these difficulties is again considered. It becomes quite evident that scarcely any of them apply to the conditions under which labor unions grant their out-of-work benefits.

The "moral hazard" of malingery is naturally reduced to a minimum. A trade union knows the conditions of its particular labor market as no one else can know them. Often it takes an active part in placing the unemployed; it also knows, therefore, the conditions of employment so as to be able to see the difference between a reasonable and an unreasonable offer. It is almost impossible for a refusal of a reasonable offer to remain a secret. And as to an offer to work for substandard wages, it is the direct policy of a trade union to prefer the payment of an out-of-work benefit to a permission to accept such employment. The trade union naturally cannot be frightened away by the charge that this form of unemployment insurance may help the wage-worker in conflict between employer and employee—it is the direct aim to render such help.

Not only these broad difficulties but even the technical ones also vanish. There can be no unfavorable selection of a few trades because each union organizes its employment benefit system within the limits of one well-defined trade or a group of closely related ones where the risk of unemployment is fairly uniform. Nor can there be a personal selection of bad risks because, though

voluntary from the point of view of general law, these out-of-work benefit systems are usually compulsory within the limits of the trade organization. It may be claimed that the better grade of employees are forced to contribute to the support of the inefficient or the shiftless and inefficient, but the development of this form of unemployment insurance seems to indicate that the wage-workers as a whole are not frightened by this argument. At any rate, the financial strength of the benefit fund is not undermined because only poor risks take insurance.

But while this form of insurance against unemployment has been successful within the limits of its activity, and has also served as a demonstration of the possibility of avoiding all difficulties, its narrow limitations must not be overlooked.

Its effect is strictly limited to trade-union organizations. Rapid as has been the growth of these organizations, after all the vast majority of wage-workers is still outside of them. In some countries the unions are quite feeble. Now the necessity for unemployment insurance is vastly greater for those outside the trade unions than for those in them. To be sure, the statement frequently made that unemployment itself is more extensive among non-union men than within the circles of organized labor is disputed by some writers. And perhaps the statistics of unemployment are still in too unsatisfactory a condition to permit of a definite decision on this point. But whether organization of labor does or does not have benevolent effect upon the extent of unemployment, there can be little doubt that it has raised the average earnings of its membership. Therefore union workmen as a rule do not suffer so much from distress in case of unemployment as do workers in non-organized trades. Moreover, it is well to remember that almost the entire army of casual laborers is outside the pale of unionism, receives the lowest wages, and suffers from the greatest amount of unemployment. Briefly, the same situation develops as in the other forms of co-operative workmen's insurance. Those most in need of it do not enjoy it.

Again, the wage-workers themselves have the entire cost of this insurance to bear. Union or no union, a very large proportion of the wage-workers are not in the condition to assume this burden.

And even those who are better placed are forced to make the level of benefits very low in order to keep the dues or premiums down. Hence the problem of accumulating a sufficient reserve in order to meet the sudden increase of unemployment during an acute panic or prolonged depression can seldom be met successfully.

As a result, these out-of-work benefits are usually very moderate in amount, while a good many unions do not dare to grant any at all. Other unions are able to grant them for a very short time only. Mr. Beveridge mentions one English union consisting principally of unskilled laborers (the Amalgamated Society of Gas Workers, Brickmakers, and General Laborers) which pays only six shillings a week ($1.50), and that for not over four weeks in any one year, so that the insurance benefit within twelve months cannot exceed $6. On the other extreme is the London Society of Compositors with a weekly allowance of fourteen shillings ($3.50) which may be drawn for twenty weeks in one year and may be extended even to forty, so that as much as $140 may be drawn by one member. The actual weekly rates and length of time for which they are granted are subject to numerous variations. In England, the usual rates are 10*s.* or 12*s.* per week, which may be drawn for about twenty weeks, so that the average amount of unemployment benefits possible within one year may be estimated at $50 or $60.

In Germany, a benefit from one to 1½ marks (24 to 36 cents) per day is usual, while the duration may extend from ten weeks in some unions to forty in others. In Belgium, where unemployment benefits among union men are perhaps more common than in any other country, the average benefits (before the establishment of the Ghent system, which will be described presently) varied from 50 centimes (10 cents) to 2½ francs (50 cents) per day, or 60 cents to $3 per week, and benefits over 1½ francs per day or $1.80 per week, were exceptional. The same rates, ½ to 1½ lira, predominated in Italy, an investigation in Milan for 32 unions granting such benefits showing an average of 23 cents per day. The observation which Mr. Beveridge makes of the English out-of-work benefits, that "the allowance is never by itself adequate for the maintenance of a family," is equally true of the benefits in other countries.

The same conditions, therefore, have developed in this as in

other forms of working-men's insurance. The persistence of their efforts indicated that insurance is necessary, and the fair degree of success proved it to be, under certain conditions, feasible.

But the final possibilities are found to be limited, and the cost is a heavy burden, unless it is shared by other groups of the social body. Thus, the way is clearly indicated toward a carefully planned structure of social insurance against unemployment. The work of Mr. J. G. Gibbon on *Unemployment Insurance* (beyond dispute the best work in the English language on this subject) carries the significant subtitle, "A Study of Assisted Insurance." However, this title is equally applicable to all other branches of social insurance, because the necessity for "assistance" lies in the very foundations of the problem of insurance for the working masses.

VOLUNTARY SUBSIDIZED UNEMPLOYMENT INSURANCE

There have been many classifications of the various systems of unemployment insurance, but perhaps the best is the classification which brings out the general law in development of all social insurance, namely, the development from (1) voluntary mutual to (2) voluntary subsidized state insurance, and from that to (3) compulsory subsidized state insurance. This course was traced in the cases of sickness, old-age, and invalidity insurance, and the same process may be noticed at present in the field of unemployment insurance.

The many experiments, the failures and the successes as well, were all made in voluntary subsidized insurance. The fact that often, instead of the state, the local governmental authority, the department or province, or even the commune, has undertaken the organization and granted the subsidy, is after all a detail of minor importance.

Somewhat crudely, all these schemes of subsidized voluntary insurance provided for by public or governmental authority may be divided into two groups, which Mr. Gibbon has named, respectively, Provided Voluntary Insurance and Autonomous Insurance.

The difference between these two forms of organization is essential. Under the "provided" form, the public authority, usually a municipality (though in a few cases only a semi-public body, perhaps of a charitable nature), organizes the insurance insti-

tution and offers to extend its benefits, including a financial subsidy, to the individual workman. The "autonomous" form proceeds on an entirely different plan—it accepts the form of insurance organization created by the workmen themselves and only comes to their assistance, thus following on the familiar lines of voluntary subsidized sickness insurance or old-age insurance in the Scandinavian and other countries. Of these two forms, whose designation is sufficiently characteristic, the latter, the autonomous form, is the more recent and by far the more successful. It is undoubtedly the experience of the "provided" form, organized in the nineties of the last century, which is responsible for the pessimism as to possibilities of unemployment insurance, so current ten or fifteen years ago.

Altogether only a few experiments of that character were made. The earliest attempt was in the city of Berne, Switzerland, in 1893. In 1896, Cologne, Germany, established a fund still existing, and, in the same year, a private organization in Bologna made a similar effort. Other funds are found in Leipzig (since 1905), in Venice (since 1901), is Basle (1901), and in Geneva (1904).

The organization of these insurance funds is very primitive. All workers without distinction are usually permitted to come in on the same terms. The Cologne fund, which is the most important, has two rates only, one for the skilled and one for the unskilled workmen.

As a result, all the difficulties mentioned in connection with the general problem of unemployment insurance come very strongly into play. There is selection of "bad risks" both individually and by trades. In all the schemes mentioned, the building trades have predominated among the insured, sometimes to the extent of 80 or 90 per cent. Naturally the trades less subject to unemployment avoid this form of insurance. Even among the building trades, the better element is antagonistic to the organization.

A very high proportion of those insured is forced to apply for the benefits—even in Cologne, from 80 to 85 per cent in six years out of twelve. The insurance principle is practically obscured. The scheme becomes simply a method of taking out more money than was put in. This serves as an additional attraction to the

economically and morally weakest elements of the working class, and not only repels the stronger but becomes soon a source of danger to the fund itself. The subsidies are usually derived from one of two sources: a contribution from the municipal treasury, or voluntary subscriptions of "honorary members" or other charitable individuals or institutions. Since the subsidies are, as a matter of fact, rather slight in all the localities enumerated, they become or threaten to become exhausted, and to preserve even a semblance of the insurance principle, the management of the funds usually feels itself constrained to apply various restrictive measures to reduce the excessive demand for benefits. Various regulations of this kind exist. Certain trades may be altogether excluded because the unemployment risk is too great. A residence qualification is established to prevent migration for the purpose of receiving the benefits. A certain length of membership is required with regular payment of dues, as a means of eliminating the malingerer. And while these measures strengthen the finances of the scheme, they really reduce its usefulness.

Briefly, the situation is that good risks avoid these schemes and the worst are not admitted. As a result the sphere of application of all of them is very limited. In Cologne, which has the oldest and by far the most important of these systems, the total number of insured is under two thousand. The Berne unemployment fund insures only about five hundred. The Basle fund, after ten years, boasted of a little over two hundred members insured. The system of Bologna, which began as assisted voluntary insurance, was finally changed into subsidized saving, where each member makes certain deposits to withdraw them with a bonus during the period of unemployment. Even that system does not attract more than seven or eight hundred members, because of certain onerous conditions connected with the system of benefits. In as large a city as Leipzig, the unemployment insurance fund, organized by private agencies in co-operation with certain trade unions, has attracted two hundred and twenty-seven members in the fourth year. The total number of insured in all the schemes of this type is, therefore, less than five thousand.

The truth of the situation is that these funds have become but

modified forms of public relief for the unemployed or rather for the worthy among them, since the right to relief is predicated upon certain contributions. This public relief is combined with the granting of such employment as cleaning the streets. Charitable funds voluntarily contributed either by individuals or by municipalities are an essential feature of them. These voluntary contributions seldom last and are never sufficient. The maximum activity depends upon success in obtaining funds.

That some of these funds have done a certain amount of useful work in relieving unemployment distress and in finding employment for the idle during the winter months cannot be denied. But as a possible nucleus for a general scheme of unemployment insurance, they have failed. Perhaps after all that is their most important achievement: they have clearly established the impracticability of individual, voluntary unemployment insurance.

THE GHENT SYSTEM

Vastly more successful has been the system of unemployment insurance which Mr. Gibbon has designated as "autonomous trade insurance," but which is usually known as the Ghent system, because the earliest successful experiments were made in the Belgian city of Ghent in 1900, under the direction of Mr. Louis Varlez, a very close student of the unemployment problem. It is fair to say that the Ghent system was the first successful method of organizing social unemployment insurance. It was the first intimation that the problem of unemployment could be attacked from that side.

The principle underlying the now famous Ghent system is very simple. It was quite evident even ten or twelve years ago that while the few municipalities which tried failed to evolve a practical system of unemployment insurance, labor unions were carrying on a considerable amount of that insurance without any particular difficulties except that certain unions felt that they could not afford it. Instead of trying to build up a new system of unemployment funds, it seemed much simpler and much more advisable to direct efforts toward developing a system which the workman had created himself and which, for reasons already discussed in some

detail in the preceding pages, proved entirely successful within its limits. The main shortcomings of trade-union insurance were, on the one hand, the small benefits and the heavy burden upon the workers' pockets, and, on the other, the fact that many unions were evidently unable to organize such systems with the funds at their disposal.

The essential thought of the Ghent system is therefore public (municipal) subsidy to labor organizations granting out-of-work benefits. The purpose is to increase the amount of the benefits given without any additional cost to the wage-worker, and to stimulate other unions to organize such systems. With this purpose in view, a certain appropriation is made by the municipality of Ghent together with its suburbs. From that appropriation, subsidies are granted to all organizations giving employment benefits, in a certain proportion to those benefits, which must be determined periodically according to the funds at disposal, the general level of unemployment, and so forth. This proportion has usually been 60 per cent of the original benefit, so that the unemployed received 60 per cent more than he otherwise would have been entitled to. Those to whom the principle of self-help is a sanctity may claim that the underlying principle of this system is that of "helping self-help." This is true. however, only if the term "self-help" is made broad enough to include "collective mutual help." For the decision of a trade union to organize a system of unemployment insurance is rather a triumph of the principle of collective mutual help over hope in the efficacy of "self-help."

The details of this scheme are somewhat complex and cannot be gone into here at great length. There are various limitations, of course. The limit of the subsidy cannot exceed 100 per cent of the benefit originally given. The subsidy is computed only on the first daily franc of the benefit. It is not given for more than sixty days in any one year to one person unemployed. These conditions and limitations under no circumstances interfere with the right of the trade union to organize its own scale and conditions of unemployment benefits, which apply to the benefit and not to the subsidy.

That the Ghent system has had a marked degree of success can-

not be disputed. From 28, the number of affiliated trade unions has increased to 43 within nine or ten years. The number of insured has increased from 13,000 to 18,000. In eight years some 650,000 francs were distributed in unemployment benefits for some 375,000 days of unemployment. Of the total amount about 220,000 francs were contributed as a subsidy. Thus the experience of this one town of some 200,000 population has been really greater than that of half a dozen towns together, which, like Cologne, have purely municipal funds.

The Ghent system with various more or less important modifications has found its imitators in many communities throughout Europe. Not only municipalities, but various departments or colonies, and finally states, have made appropriations for subsidizing either trade-union unemployment funds, or similar voluntary schemes of unemployment insurance. Perhaps the extent of this growth within one decade can best be presented in a somewhat tabular statement:

A. MUNICIPALITIES

1. *Belgium.*—All cities of over 35,000 population, and several smaller cities, altogether 21 funds with 41 communities participating.

2. *France.*—A large number of municipalities, Paris, Lyons, Limoges, Roubaix, etc.

3. *Germany.*—Several cities, such as Strassburg (since 1906), Erlangen (1909), Mulhausen (1909), Freiburg (1910), Heidelberg, Nuremberg (1911). It is planned in Berlin, Hamburg, Munich, and other cities.

4. *Holland.*—About 25 cities and towns altogether, including Amsterdam, Arnhem, and Utrecht (since 1906), one since 1907, eleven since 1908, eight since 1909, one since 1910, and one since 1911.

5. *Italy.*—Three cities, Milan since 1905, through a privately endowed philanthropic fund, Padua and Brescia since 1909 or 1910, directly. (This does not include Bologna and Venice, where direct systems of insurance exist.)

6. *Switzerland.*—The country of the early and unsuccessful attempts at direct and even compulsory insurance has also been influenced to adopt the Ghent scheme, in St. Gall (since 1905), Geneva (since 1909), and a few small towns.

B. LARGER CIVIL DIVISIONS

Provinces, departments, etc.—Small subsidies, often in addition to the subsidy of the local community, are given by these political divisions in Belgium and France.

C. STATE GOVERNMENTS

1. Belgium since 1907 distributes a small subsidy to some of the communal unemployment funds, or trade associations granting unemployment benefits, whether affiliated or not with the communal fund.

2. France similarly distributes in subsidies to unemployment-insurance associations an appropriated sum which amounts to some $22,000 annually since 1905.

3. A truly national system of subsidized unemployment insurance was passed in Norway in 1905.

4. A similar system was established in Denmark in 1907.

The list thus given is comprehensive enough to indicate the rapid extension of the Ghent system or its various modifications. Naturally, with such a large number of systems independent of each other, a very great variety of detail may be observed in the methods, upon which the efficiency of the system often depends.

The differences in the method of organization between municipal and national systems have already been indicated. That the national systems have the preference seems to be quite evident, if only because they are much more effective in extending the benefits of unemployment insurance without interfering with the mobility of labor. Thus the Danish and Norwegian systems seem from the point of numbers to be the most nearly perfect. Considering the population of these two small countries, it is certainly significant that Norway has about 50,000 persons insured against unemployment, and Denmark an even 100,000.

To whom shall the subsidy be paid? That is one of the essential problems of organization in most of these funds. The majority of these organizations, in fact practically all of them in all countries, are trade unions. But no law or system requires them to be such. Indeed, in some countries, it is very definitely provided that the subsidized association shall not be a trade union, but an organization expressly formed for the purpose of unemployment insurance. In actual practice this requirement has simply resulted in subsidiary formal organizations of the same membership as the trade union. That is the situation in Denmark. In Norway the law requires that if a trade union possesses an unemployment benefit fund, its accounts shall be kept entirely distinct, and the fund shall possess a legal identity of its own.

There are several reasons for this requirement. The modern state had no desire to come out openly as a partisan of trade unions, or to permit the use of any part of its subsidy for other purposes than unemployment benefits. Furthermore, it did not wish to discriminate against the non-union man, and did wish to leave open for him a way to the subsidy. Moreover, in granting the subsidy, the state wishes to exercise control of the unemployment benefit fund without interfering with the trade union as such. In both these countries, the law requires as a condition of the subsidy that membership in the fund be open to anyone, whether a member of the trade union or not. And this provision was very distasteful to the unions and delayed the acceptance of the subsidy, especially in Norway; but gradually the opposition was overcome, because its actual effect was felt to be very weak.

Other regulations as to the organizations entitled to subsidy or as to individuals entitled to membership in such organizations are few. The natural tendencies of the workingmen's organizations are permitted to work themselves out. In some of the systems enumerated, it is required that the organization be limited to one trade or allied trades, this uniformity of occupation being necessary to insure some uniformity of risk. In other regulations a vast variety exists. Most of the municipal funds leave the actual determination of the amount of benefits to the voluntary organizations, though they may pay their subsidy only up to a certain amount of the benefit. On the other hand, definite limits are met with. Under the Strassburg system, for instance, the benefit originally paid by the trade union must not be over one mark, or 24 cents a day; the Norwegian law puts the maximum at one-half of the wages, and the Danish law places the limits at from ½ to 2 kronen (13½ cents to 54 cents). There is in most of these limits some conception of the rock-bottom standard of physical necessities of existence.

The variety of provisions is not smaller which concern the manner and proportion of the subsidies granted. Under the Ghent system, as was explained, the subsidy is given *ex post facto*, as it were, in proportion to the benefits. It is true that the subsidy is given at the same time with the basic benefit, but the amount is

reimbursed to the organization after a subsequent accounting. This is the predominating method in other Belgian communities, in the Milan fund, in most Dutch systems, in the national system of Norway. The system of Denmark is the most notable exception to this rule, the subsidy there being paid according to the premium rather than the benefit. The Ghent method is usually considered preferable, in that it encourages the payment of benefits rather than accumulation of funds, prevents the waste of subsidy in administrative expenses, and requires less interference with the association's management of the funds.

The amount of the subsidy must be substantial if the desired results of effective increase of the benefits and strong stimulus to the development of mutual insurance are to be realized. In the Ghent organization 60 per cent of the basic benefits were usually given. Under the Danish law one-third of the premium is contributed out of the national treasury, and the local authorities are permitted to contribute another sixth, so that altogether one-half of the premium is contributed, constituting a subsidy of 100 per cent. The Norwegian system provides for a subsidy of 25 per cent of the total benefits paid, or 33⅓ per cent of the basic benefit. In most of the cities of Holland the subsidy is 100 per cent. In the city of Strassburg it is 50 per cent. The same amount is paid by the Humanitarian Society, which conducts the system in Milan. In the French cities the variation is very great. On the one hand, Lyons grants a subsidy of 100 per cent, and, on the other, Paris grants only 20 per cent. To be sure, the actual rate of the subsidy is often smaller than that stated in the rules, because many other regulations exist restricting the subsidy, often according to the length of residence, or excluding the earliest stage of unemployment, or limiting the duration of the subsidy. In other words, the subsidy system may have its own regulations as to subsidy, without necessarily enforcing them upon the voluntary organization.

It has already been stated that while all sorts of organizations granting unemployment benefits are permitted to take advantage of the subsidies offered, as a matter of fact, activity in granting out-of-work benefits, and consequently the subsidy as well, are confined to trade unions. Thus the benefits of all these systems

reach only organized labor. The granting of the unemployment subsidy may have had the effect of attracting to the trade unions a certain proportion of the wage-worker's class who otherwise would not have joined them, but with all that, a majority of the working-men in most of the countries remain outside these organizations, and to them the system of subsidies to voluntary organizations offers little or nothing.

This difficulty was felt from the very beginning of the organization of the subsidy system in Ghent, and in order to meet the demand of the larger part of the working class, a modified system of subsidies to savings was devised. This consists in granting subsidies, in the same amounts as to the association, to withdrawals from the private savings bank accounts when such withdrawals are made because of unemployment. The same test of unemployment is applied which will be mentioned presently. During the first three years such subsidies to private savings were made only when the deposits were made for the special emergency of unemployment, and thus constituted a modified form of insurance. This was not altogether a new principle, for the identical form of unemployment insurance had been practiced in the city of Bologna, Italy, by the local savings bank since 1896. In 1904, the scheme, in view of its failure to become popular, was made more liberal, by granting the same subsidy to withdrawals from any savings-bank account, provided the withdrawal was made because of unemployment.

This provision for unemployment of individuals not members of any unemployment benefit association is found only in a few of the schemes described. In almost all the Belgian municipal funds, the principles of the Ghent plan were faithfully followed, including this method of subsidizing individual savings. But outside of these, only a few municipalities, in Germany notably Erlangen and Freiburg, have adopted this subsidiary system. It does not exist in either one of the two important national systems of Denmark or Norway, nor in the more limited systems of France. The systems of Milan and other Italian cities, of all the cities of Holland, of the city of Luxemburg, and of most German cities, are strictly limited to subsidy of organizations, often only to trade unions.

To be sure, the question of the existence or absence of this subsidiary system of assistance to individual earnings is rather an academic one, not because the interests of non-union labor are of no importance, but because, even when the system exists, it has failed as decisively as the essential features of the Ghent system have succeeded. Taking together all the Belgian systems, to which this subsidiary system is confined, about 150 or 200 persons have availed themselves of it, and have shared a total subsidy of about 2,500 francs, whereas 17,000 to 20,000 persons have been subsidized through the trade organization part of the scheme.

Thus the Ghent system, as well as its imitations and modifications, are practically limited to organized labor. It is true that in a few cities, as for instance Roubaix (France), Basle (Switzerland), Nuremberg (Germany), Dordrecht (Holland), and a few others, efforts are being made to meet the needs of unorganized labor in a different way, by direct municipal insurance funds, such as the "provided" schemes described earlier in this paper; the fund receiving the dues (or premiums) of those voluntarily insured, usually uniform for persons of all trades and ages, and granting a benefit to which a subsidy is added. There is little reason to expect, however, that these plans should prove more successful than those in Cologne, Berne, Bologna, etc., already described.

How do these subsidized systems meet the essential difficulties of unemployment insurance which have been found to interfere so seriously with the working of the direct municipal system, namely, the difficulties of (1) proper definition of unemployment; (2) its distinction from other forms of enforced or voluntary idleness; and (3) tendency to malingery?

Here again, there is a wide space for the testing of divergent methods. There is, however, a certain uniformity in this variety. In so far as all of these schemes work in co-operation with the trade unions or similar voluntary organizations, they depend upon their system of supervision. There must be in each one of these organizations an incentive for preventing malingery or fraud, because they themselves pay the larger part of the subsidy. In addition, some other method of control usually exists. Thus, most of the insurance systems described work in close co-operation with "labor

exchanges" or public employment offices, which fulfil the double functions of control and prevention: control over possible fraud, and prevention by placing the insured unemployed either in public or in private employment. Registry at such labor exchanges is usually required as a condition of receiving the subsidy. In Strassburg, Erlangen, and several other German cities, daily visits at the labor exchange during the entire period of unemployment are required—a rather vigorous method of control, which is defended also upon the ground that it is conducive to sobriety and offers better chances of finding employment. In some systems, as for instance in Ghent, such daily visits are not required of those unemployed who are members of labor organizations, but only of the individually insured. A great deal of theoretical importance is ascribed by some writers to these methods of control, for through them some definite system may develop to overcome one of the serious difficulties of direct public unemployment insurance.

How much have these numerous systems succeeded in accomplishing thus far? The answer to this question is not easy, for most of these systems are very recent; and, moreover, it is always difficult to get an accurate measurement when dealing with a large number of diverse, local, independent organizations rather than large national systems.

Perhaps the most comprehensive collection of statistical information on this subject is contained in the proceedings of the Conference on Unemployment held in Paris in 1910. Most of this information has been summarized by Mr. J. G. Gibbon in his study on *Unemployment Insurance*, and from his tables an effort may be made to measure the development as a whole.

Number of persons insured under the voluntary subsidized schemes, state and municipal:

Denmark	95,000
Norway	50,000
Belgium (21 communal funds)	40,000
France (state system)	40,000
Milan (Italy)	12,000
Holland (11 communal funds)	15,000
Strassburg	5,000

The brief list includes the most important of the systems of the Ghent (or modified) type, and in the seven countries it covers a little more than 250,000 wage-workers.

A general estimate of the Ghent systems must take these facts into consideration. As the first successful effort to apply social forces to the relief of the unemployment problem, it has its enthusiastic admirers, who consider it the only practical method of social unemployment insurance. It must readily be admitted that the development of the Ghent system was a growth of large importance. But at best the Ghent system is restricted to organized labor, and only that part of organized labor which sees its way to undertake out-of-work benefits. Where labor is weakly organized, or where, as in France, labor organizations have done very little in the field of unemployment insurance, the Ghent system fails to show results that count. And in all countries, it scarcely touches the very worst forms of destitution resulting from unemployment. In other words, the positive results of the Ghent system—the demonstration of the entire possibility of unemployment insurance, and the development of methods of meeting all its specific difficulties—are due to the fact that the union presents a unit of compulsory insurance. Its weakness and limitations are due to the fact that the very existence of the unit is a voluntary matter. In so far as the system approaches compulsory insurance, it is within its own limits successful. In so far as it is voluntary, it fails of achieving the necessary results.

The inevitable inference points to the compulsory principle in this as in other lines of social insurance.

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COMMERCE AND INDUSTRY IN SPAIN DURING ANCIENT AND MEDIAEVAL TIMES

In the absence of very definite records the earliest history of Spanish commerce and industry remains a subject for speculation and inference. As far back as twenty and thirty centuries before Christ, some manner of trade and commerce seems to have existed in what is at the present date the Spanish peninsula.[1] There is, however, nothing approaching definiteness in this regard until nearly ten centuries before the Christian era, when it was recorded that King Solomon's "ships went to Tarshish . . . . every three years once . . . . bringing gold and silver."[2] The same chronicle speaks of another king of Judea who for some iniquity was by the act of God frustrated in his plans of an expedition to Tarshish.[3] But perhaps of greater importance were the Phoenician merchants who first opened the trade of the Mediterranean sea and visited the Spanish provinces most frequently.[4] They are said to have taken possession of what is now western Andalusia in the tenth century B.C., and there is little doubt of their having explored the coasts of the Spanish peninsula during the later centuries. It is true that the Phoenician merchants of this period were primarily engaged in piracy, but they were not satisfied by capturing men and merchandise only. They established trading-posts and warehouses at Algeciras, Malaga, Cadiz, and Seville and named the peninsula *Span* or Spania, which means hidden.[5]

The Phoenicians, like the agents of the Judean rulers, visited the shores of Spain for the gold, silver, copper, and tin that were found there. According to Diodorus it was this abundance of gold and silver that furnished Carthage with the sinews of war against Rome at a later period.[6] But the precious metals were by no means the sole products of Spain. Wine, wool, cloth, and

[1] Altamira, *Historia de Espana*, I, 67.

[2] II Chron. 9:21. [3] II Chron. 20:36.

[4] Ezek. 17:12. (Cf. Huet, *History of Commerce*, p. 132; Freeman, *History of Sicily*, I, 239.)

[5] Altamira, *op. cit.*, p. 68. [6] Quoted by Huet, *op. cit.*

linen, the latter of which was manufactured in Spain first, were among her chief exports. Honey, wax, salt fish, oil, and pickles were other commodities supplied by Spain. Aside from the fertility of her soil, Spain offered the invaders commodious ports, harbors, and navigable rivers along which they established a number of trading-posts.[1] Trade was carried on at this time by barter; but with the discovery of the rich gold and silver mines in Spain the Phoenicians introduced a system of coinage which greatly facilitated commerce.

The commercial history of Spain during this early period is thus more or less conjectural. Not until the centuries immediately preceding the birth of Christ, when Rome ultimately triumphed over Carthage, are there any data regarding commercial Spain. By supplanting the dominion of Carthage in the peninsula, Rome fell heir to all the wealth of the country. Aside from the precious metals which were always to be considered the most valuable of Spain's products, Rome imported wheat, wine, wool, fruits, oil, honey, wax, dyes, salt, pitch, oysters, pork, cured hams, and horses.[2]

Like a good steward Rome improved her opportunities. In the rich fertile valleys of Guadalquiver and Guadiana in southern Spain, the culture of the vine, the olive, fruits, and grain was encouraged. In the more arid regions of central Spain sheep- and cattle-raising proved to be the most profitable occupation. In spite of a temporary prohibition on wine production, for the purpose of allowing Italy a monopoly of this trade, the Romans introduced several species of the vine into Spain and as a result we have the famous vines of Falerno, Beleares, and Jerez.[3]

Nor were manufactures and mining entirely neglected by the enterprising Romans. Sheep-raising on an extensive scale led to the manufacture of woolens, and the cultivation of flax supplied linen. As for mining, the mines of Almira and Cartagena abounded in silver and lead; those of Huelva and Galicia were noted for their copper and tin production respectively, while gold,

[1] Quoted by Huet, *op. cit.*, p. 132.

[2] Webster, *History of Commerce* p. 31.

[3] Altamira, *op. cit.*, I, 127. *Jerez* gives us the *sherry* wine.

silver, and cinnabar came from Andalusia. Some idea of the extent of the mining industry may be gathered from the fact that in the second century B.C. there were no less than 40,000 miners in Cartagena alone.[1]

Such a wealth of agricultural and mineral products, not to mention manufactures, afforded a rather substantial foundation for an extensive commerce with the outside world. Consequently we find a very active trade between the Roman colonies in Spain and Africa, Italy, and France. Although the land routes were more frequently used at this time, yet a considerable number of merchant ships carried on a lucrative commerce along the Mediterranean coast and in the interior towns along the navigable rivers, as Seville on Guadalquiver.[2]

Of sufficient consequence for the development of commerce at this time was the institution of a postal system established by Augustus. It was, however, an exclusive concern intended solely for the use of the nobility and the upper classes in society, although it was supported by public taxation. Nevertheless, as society was then constituted, commerce very often found her patrons among the élite of the community, and thus the postal service was of decided advantage in commercial intercourse. Later, Hadrian extended the service so as to include all classes and supported it as before by general taxation.[3]

With the Visigothic invasion and domination of Spain in the early decades of the fifth century, commerce and industry, generally, received a serious check. Perhaps no industry suffered from the conquest so much as agriculture. For upon entering Spain, the conquerors seized a large part of the fields and houses and dispossessed the individual proprietors.[4] In the course of a short time, there were founded the *latifundia*, worked by slaves or serfs. It was precisely this landed proprietorship giving rise to a large servile class that made it impossible for the Visigoths to stem the tide of the Moslem onslaught in the eighth century.[5]

The change in the system of agriculture thus brought about left

[1] Altamira, *op. cit.*, I, 128.

[2] *Ibid.*, p. 129.

[3] *Ibid.*, p. 231.

[4] *Ibid.*, p. 193.

[5] *Ibid.*, p. 394.

the invaders free to indulge in the exciting business of constant warfare. Commerce and industry occupied their attention still less than agriculture. In fact, but for the few Jews, Greeks, and Romans who had survived the barbarian invasion, commerce would have probably vanished from the peninsula. These peoples still succeeded in carrying on some trade with the Levant by means of Spanish vessels. The production of silks, wool, oil, iron, and the manufacture of arms and the building of ships still survived from the Roman times. Another institution of the Roman period which persisted with undiminished vigor was the gild system in the various trades. The distinction between journeymen and apprentices continued vigorously and unless an artisan could establish his claim in one or the other of these classes he was barred from the unimpeded practice of his own profession.[1]

Before passing on to the overthrow of the Visigothic supremacy in Spain by the Arabs, some observations, by way of digression, upon the part played by the Jews in the successive conquests of Spain by the Visigoths and then by the Arabs may not be entirely amiss.

Sufferance, it is true, has ever been the badge of the Israelite, but he has not been altogether a passive agent, nor has his loyalty to the cardinal virtue of non-resistance been consistent. The Jews of Spain under the Roman rule were hated bitterly by the Catholic Christians. Their trade and industry were hampered by special laws and regulations. If any protection at all was afforded them by the rulers of the colonies, it was only to save them for exploitation. This state of affairs continued for some time until it reached a climax during the latter part of the fourth century. The Jews, being driven to desperation, were only too glad to admit the barbarian host under Atawulf in the hope of escaping the Catholic persecution.[2] Precisely this same course was pursued in later years by the Roman subjects in Africa who, chafing under the yoke of Rome, invited the Vandals to overthrow the Roman power.

[1] *Ibid.*, pp. 208–10.

[2] Villamil, "The Jews in Early Spanish History," *Catholic World*, LIV, 86.

The Jews enjoyed some degree of freedom under the Visigothic rule. They carried on their business transactions and loaned out money at interest without molestation. This happy state, however, came to an end when the barbarian conquerors, dazzled by the culture and civilization of Catholic Rome and eager to emulate the Roman manner of life, embraced Catholicism. The persecution of the Jews was revived and kept up relentlessly. Under these circumstances, "the Jews acted like the false mother before the judgment seat of Solomon" and, rather than endure the success of their rivals, the Catholics, threw open the country to the Arab hordes, who had been engaged in the conquest of Africa,[1] and were now preparing to invade Spain.

The first effect of the Moslem ascendency in Spain was to break up the *latifundia* into small holdings and to distribute them among the soldiers and allies. The Arabs, who had been for the most part a nomadic people and untutored in the art of agriculture, in a short while proved to be efficient yeomen. By far the most successful agriculturists were the apostate Arabs.

Under the wise administration of the Mohammedan caliphs agriculture, commerce, and industry received fresh impetus. The gradual emergence of a small proprietary class in society, as a result of the new system of land tenure, tended to bring about a degree of security and stability of business not enjoyed upon the peninsula since the days of the Roman rule.[2]

Spanish agriculture profited furthermore by the addition, to an already long list of products, of many new varieties of fruits and vegetables which the Arabs brought with them. Of the most important were rice, sugar cane, and the pomegranate.[3] Even the culture of the vine flourished and spread over the land in spite of the Islamic scruples against the worship of Bacchus and the harsh decrees of the caliphs against the setting-out of new vineyards. In the arid regions of central Spain large flocks of sheep were raised, furnishing the raw material for manufactures of woolens. Cordova, Malaga, and Almira were famous for their

[1] Villamie, *op. cit.*, pp. 360 ff.

[2] Nys, *Économie politique*, p. 57.

[3] Altamira, *op. cit.*, I, 264.

silk and wool manufactures. At one time Cordova alone harbored 13,000 textile workers.[1]

Almira was noted also for her manufactures of glass, iron, and bronze vases which were richly decorated with artistic designs. Murcia, Seville, Almira, Toledo, Granada, and above all Cordova were the large industrial and commercial centers of Mohammedan Spain. These cities and their surrounding regions carried on a most profitable trade with the rest of the world, receiving goods of every description in exchange for the famous leathers of Cordova,[2] arms of Toledo, draperies of Murcia, rich silks of Granada, and the various agricultural products of other regions.[3] The Jews, too, who had been more or less disturbed in the pursuit of their vocation, became now the foremost merchants. The ports of Cadiz and Seville were repaired and enlarged to make room for the increasing volume of commerce. Barcelona opened her ports to the ships of Pisa and Genoa which came from the Levant laden with merchandise.[4] The return cargo of these ships consisted of cotton, olive trees, oil, raisins, figs, which surpassed the product of all other countries, saffron, wines, aromatic herbs, marble, and precious stones. These goods were carried to some port on the African coast whence they proceeded on the caravan routes to the Orient; or the ships thus laden went direct to Egypt and Constantinople, thence to the Euxine Sea and up the Don, then down the Volga River through Transcaspia. From Egypt the Spanish merchants imported women and slaves. There was also some communication between the Moslems and Byzantium, owing to the frequent pilgrimages which the former made to Mecca, Bagdad, and Damascus.[5] The gold, silver, and copper mines, which must never be lost sight of in any discussion of Spanish commerce, afforded the richest source of wealth. Some of the mines were worked by individuals for their private gain, while many others were owned by the caliphs and worked for the profit of the Moslem rulers.

[1] *Ibid.*, p. 256.

[2] *Cordoban*, from which we derive *cordwain*, is the Spanish word for highly finished leather. The origin of the word is unmistakable.

[3] Webster, *op. cit.*, p. 47.

[4] Noel, *Histoire du commerce du monde*, I, 145.

[5] Altamira, *op. cit.*, I, 266.

This progress in commerce and industry was the basis of the growth of a large and prosperous population under the Mohammedan domination. Cordova, which was one of the most populous and wealthy cities in Spain, was unsurpassed by any in the world in pomp and splendor. In the last century of the Moslem occupation under Abderrahman III, Cordova contained some 200,000 houses, 600 mosques, 900 baths, elaborate water conduits, public fountains and parks, and magnificent palaces. The public revenue had risen from something like $800,000 during the reign of Abderrahman I to approximately $13,000,000 under Abderrahman III.[1]

In Leon and Asturias, the chief Christian provinces in Spain, economic conditions were not so prosperous as in Mohammedan Spain. Life and property were less safe, because of the weakened condition of the Christian rulers. The only exception to the occupation of constant warfare which engaged the attention of the Christians was to be found in the occasional tilling of the soil, sporadic sheep-raising, and the intermittent pursuit of a few of the more indispensable industries. Galicia on the northern coast of Spain, owing to her isolated position and her proximity to the sea, developed a certain amount of commerce. Being a rendezvous of pilgrims from all parts of the world, this province grew in wealth and population. Hotels and banking houses were erected for the accommodation of the travelers. Owing to the peculiar mission of these tourists, however, there developed the manufacture of sacred emblems and images. Santiago became the center of this trade, and as most of the workshops were controlled by the archbishops they secured a monopoly of the trade by forbidding such trade to be carried on outside the city.[2]

Commerce in general was hampered in many ways. On the one hand there was the ever-present fear of Moslem and Norman invasions; on the other, there was the seigniorial interference with trade, together with heavy taxes and tolls of every conceivable nature, such as bridge dues, tonnage, and anchorage.

Agriculture was in a measure fostered by the monasteries and

[1] Altamira, *op. cit.*, p. 262. (Abderrahman I began his rule in 756, Abderrahman III in 912. The latter's rule marked the zenith of Moslem supremacy in Spain.)

[2] *Ibid.*, p. 305.

by the enactment of a law giving complete title to any piece of land to anyone who would bring it under cultivation. But these measures were of little avail in the face of frequent depredations of the fields by the Moslem hordes, on the one hand, and heavy taxation of the land and the annoying feudal dues, on the other. Owing to these unfortunate conditions, the populace for the most part led a wretched life and often fell victim to famine and pestilence.[1]

It must not be supposed, of course, that perfect peace and tranquillity ruled the Moslem empire. The Christian chiefs and princes were restive and often engaged the Moslems in battle in the hope of recovering their lands by driving the Mohammedans from Spain. The first decisive blow was struck the Moslem rule in 1085, when the Christians under the valiant leader Alfonso VI captured Toledo. From this date onward the Christians began steadily to gain ground from the Moors. With the union of Leon and Castile in the beginning of the eleventh century, Christian Spain extended to Andalusia and brought the Moorish principalities into a state of vassalage.

In course of time peace was established, only to be broken somewhat frequently by petty civil feuds. In general, however, there was substantial personal security and a certain degree of guaranty against the exactions of the nobles and the attacks of robbers. At the same time the emancipation of the servile class and the attachment of families to the soil with a degree of independence improved the economic situation and encouraged labor and industry. As a rule, only the arable lands could be appropriated by individuals or families. The forests, pastures, and unbroken lands were held by the municipality and enjoyed by the entire community. In some rare instances the lands under cultivation also belonged to the community. Whenever this was the case, the lands were apportioned to the members of the community annually, either directly or by allotment. The *Fueros*[2] of the time were very strict in regard to keeping such fields intact. Among other inducements especially favoring agriculture were land grants to those who

[1] *Ibid.*, p. 308.

[2] *Fueros* is the term applied to the laws.

undertook to bring under cultivation new lands; exemption of the tillers of the soil from taxation and military service; security of property rights; digging of wells for irrigation purposes, etc.[1]

Equally important with agriculture was the cattle industry. Horses, asses, sheep, goats, and hogs were raised in the less fertile regions of Spain and very frequently they were allowed to wander over cultivated fields to the grave prejudice of the farmers. This ill-advised practice gave rise frequently to bitter feuds between the farmers and cattle-raisers.[2]

Commerce and industry developed a little more slowly. With the exception of Santiago there were perhaps no great centers of industry. Galicia, Leon, and Castile at this time scarcely produced enough to supply the ordinary needs of the inhabitants. In general, the inference to be drawn from the laws of this time is that there were scarcely any trades. The *Fueros* of certain provinces, however, reveal exceptions. For instance, blacksmithing, carpentry, weaving, and gold and silver smithing are mentioned in the laws of Salamanca, Plasencia, and Moliva. The code of San Sebastian given by the king of Navarre in 1180 speaks of iron, wool, and wine exportations.[3]

Foreign commerce also was at a low ebb. Probably the only important commercial city was Barcelona. While Leon and Castile were fighting the Moslems, "the burghers of Barcelona were sailing the seas in quest of commerce and adventure and emulating the civilization of the East."[4] They entered into commercial treaties with foreign powers and succeeded in making trade and travel safe by ridding the Spanish coasts of the Moorish pirates.[5]

This decline in commerce and industry, consequent upon the destruction of the Mussulman caliphates at the hands of the Almoravides and Almohades,[6] and upon the conquest by the Christians, was only temporary. For with the gradual ascendency of the Christians, commerce and industry revived with increasing

[1] Altamira, *op. cit.*, I, 495.

[2] *Ibid.*, p. 497.

[3] *Ibid.*, p. 498.

[4] Burke, *A History of Spain*, I, 253.

[5] *Ibid.*, p. 258.

[6] These were barbarian fanatics who came from Africa and swept over the Moslem empire in Spain in the eleventh and twelfth centuries.

vigor. The thirteenth century was a period of great material development in the entire peninsula. There are facts indicating the early beginnings of commercial relations between Castile and Flanders and Germany.[1] Galicia, Aragon, Navarre, and some of the eastern provinces also began to trade with Europe and England. The trade of these distant districts went for the most part by way of Navarre through the Bay of Biscay. This route was chosen for the obvious reason that the outlet on the western coast was barred by Portugal, and the outlets on the east and south by the Moors and Mohammedans. The chief exports of these provinces were mercury, leather, wool, and wine, the latter of which was very highly prized in Europe.

In southern Spain, Seville assumed commercial importance especially under Ferdinand III. He encouraged trade by every means, particularly by extending freedom of trade to foreign merchants and by appointing a financial agent to facilitate commercial exchanges among the traders of various nations. Ferdinand III also established dockyards in Seville for the building of merchant vessels, thus laying the foundation for the Spanish merchant marine which was destined to play a conspicuous part in later history.[2] In the interior of the country the merchants were still annoyed in their trade by personal insecurity during travel and by numerous tolls and taxes which were exacted from them by the nobles. The kings tried, at various intervals, to remove these obstacles in the way of commerce by military aid and by the institution of fairs and markets under governmental supervision, but with little success. Nor must the fact be passed by unnoticed that the use of money as a medium of exchange assisted trade very materially. With the expansion of international commerce, money came to be an indispensable tool of exchange and circulated freely at markets, fairs, and large centers of production. The coins of various nations were made available also by taxes paid by the merchants and by the tributes levied upon the conquered Moors.[3]

As for the trades, they were organized very much after the manner of the Roman *collegia*, being independent political units with their proper government, treasury, seal, flag, and religious

[1] *Infra*, p. 449. [2] Altamira, *op. cit.*, I, 500 ff. [3] *Ibid.*, p. 502.

patron. These corporations grew in political power and became formidable social factors, seldom failing to procure for themselves special privileges and valuable franchises, often to the prejudice of public welfare.[1] They carried on domestic manufactures with scrupulous care as to the quality and quantity of goods produced. To guard against fraud and deceit in the making of goods, they had special inspectors whose duty it was to exercise careful scrutiny over the production of commodities. The trades were segregated, one particular trade often occupying a single street or district; hence the existence of many localities at the present day whose names have been derived from the trades which at one time happened to be established there.

Turning now to the eastern coast of Spain, it is to be noted that the provinces of Aragon and Catalonia were not far behind Leon and Castile in economic progress. The system of land tenure which obtained in these provinces was much the same as that which prevailed in other Christian provinces. The export trade which flowed through Navarre included wine, olive oil, wheat, rice, and saffron from Aragon and Catalonia. Most of the agricultural products were sent to Flanders.[2] But owing to the comparative barrenness of the soil in these eastern provinces, more attention was given to sheep- and cattle-raising than to cultivation. Consequently the manufacture of cloth and the tanning of leather became important industries, if not the natural industries of this region. The extent of the leather industry may be inferred from the fact that a street in one of the Catalan cities was called Pelleceria.[3]

Despite the poor quality of her soil, however, Catalonia succeeded in developing the vine culture quite extensively. Valencia, thanks to an elaborate system of irrigation, was more successful in agriculture, and, owing to the industrial genius of the Moors, she manufactured woolens, cottons, silks, paper, cordage, brass, and earthenware.[4] Emulating her neighboring rivals, the Italian

[1] Altamira, *op. cit.*, I, 498.

[2] *Ibid.*, p. 445.

[3] *Ibid.*, pp. 545 ff. From *Pelleceria* is derived the modern Spanish word *pellejeria*, meaning "leather worker's shop."

[4] The Spanish word *fustanes*, meaning a "cotton cloth," has probably been derived from the Arabic word *fustan*, meaning a "woman's dress." Similarly, the Spanish word *cordeleria*, meaning "cordage," is derived from the Arabic *cordela*, "a ribbon."

republics, Catalonia succeeded by the middle of the thirteenth century in adding glass, linen, woolens, silks, and woodenware to her list of manufactures.

If not in agriculture and industry, at least in foreign commerce the supremacy of eastern Spain is beyond all peradventure. Either by way of the northern route (through the Bay of Biscay by way of Navarre) or through Barcelona, Aragon could send her ships to Flanders, England, and Germany. In case of emergency still a third route was open to her—the southern route by way of the River Ebro through the port of Tortosa.

It was at this period, too, and especially during the reign of James I of Aragon, which covered the greater part of the thirteenth century (1213–76), that Catalonia reached the zenith of her commercial development. The port of Barcelona was thrown open to the commerce of the world. It was frequented by merchants from Pisa, Genoa, Sicily, Syria, France, and England. At the time of the rule of James of Aragon, Barcelona rivaled Venice and Montpellier as a great commercial center. The Catalan merchants were quite able to hold their own against the merchants of Italy in the competition for the carrying trade of the Levant.[1] The commercial and industrial importance of Barcelona may be gathered from the fact that in 1258 the City Council contained 114 representatives from the various trades.[2]

In 1227, James I, seeing the growing importance of the trade with Egypt and the Barbary coast, enacted what in modern terminology would be called navigation laws. He restricted the carrying trade between Barcelona and these countries exclusively to the Catalan merchant ships. Within a decade the trade had increased so greatly that additional harbor accommodations were necessary. At the same time piracy had grown to be so profit-

[1] Altamira, *op. cit.*, I, 548.

[2] Swift, *James the First of Aragon*, p. 225. The list includes: six cloth-merchants, four money-changers, eight druggists and apothecaries, nine wool-dealers, nine tanners, eleven mattress-makers, four harness-makers, three brass-founders, six purse-makers, eight saddlers, two armorers, five shoemakers, four wax-weavers, two dyers, three tailors, two crossbow-makers, four smiths, four carpenters, two potters, four coopers, three masons, four cotton-spinners, one leather-dresser, two hucksters, two gardeners, two auctioneers.

able and therefore so persistent that James was obliged to establish a coast guard to protect the merchants against the marauding expeditions of the Moorish and Christian pirates.[1]

By far the largest trade was with the Italians and more particularly with Genoa, which at this time was perhaps the most important trading city on the Mediterranean. By a treaty concluded between James and the Italian traders in 1230, the latter were permitted to visit the Spanish kingdom and carry on trade "with freedom and security" and without paying tolls or harbor dues. In return for these privileges, the Genoese gave similar rights to the subjects of James.[2] Notwithstanding many serious frictions between these rival traders, both countries grew in wealth and power through commerce. Eventually, however, James's dominion was so overrun by foreign traders that he was compelled to banish them. At one time he ordered the expulsion of "all Lombards, Florentines, Sienians, and Luccans." In 1268 all strangers were forbidden to engage in banking business in Barcelona or to load foreign ships with native merchandise.[3]

Trade with Egypt, Palestine, and Syria grew in weight and tale to such a degree that in 1272 Barcelona was permitted to have consulates established at Alexandria for the administration of justice to James's subjects trading in Egypt.[4] James established a factory in Tunis which he leased to the merchants for a term of years and for which he received liberal compensation. In the course of time a regular commercial code (*Libro del Consulado del Mar*) was developed for the regulation of trade relations among the European nations.

In regard to internal commerce the frequent concessions of air and market privileges are sufficient evidences of a brisk local trade.[5]

The chief exports were wheat, flour, wine, raisins, honey, fruits, saffron, salt, lead, iron, and steel arms. Wool was the chief export of Barcelona. The manufacturing centers were Genoa, Tortosa, and Perpignan. In exchange for these products, the

[1] Swift, *op. cit.*, p. 226.
[2] *Ibid.*, pp. 227–28.
[3] *Ibid.*, p. 229.
[4] *Ibid.*, p. 226.
[5] Altamira, *op. cit.*, I, 549.

provinces imported pepper, ginger, indigo for dyeing cloth, silk, sugar, and incense.[1]

The trades were organized into gilds. They were especially strong in Valencia and Barcelona. For the most part, however, they were under governmental supervision and seldom enjoyed any political independence as did those of the southern provinces.[2] Nor were the trades and industry free from obstacles. Private warfare and papal restrictions on the trade with the Saracens caused no small annoyance to the merchants and artisans.[3] In addition to social difficulties with which commerce had to contend, there were the more burdensome political obstructions in the way of trade. With the exception of a few cities which for a time enjoyed a reasonable degree of freedom from heavy taxation, the pressing hand of the toll-gatherer fell quite uniformly over every city in James's dominion. The king of Aragon levied high duties on all imports of wheat, corn, cloth, etc., and prohibited the exportation of wheat without the royal license. This excessive taxation is to be explained partly by the inability of the majority of people to pay taxes and partly because of the heavy indebtedness of James, who often pledged the revenues of the kingdom and pawned his jewels to meet the claims of his creditors.[4]

In his attempt to bring about reforms in trade, James tried to fix the price of corn and other commodities, and forbade the combination of merchants for the purpose of raising prices. He established for the Jews the uniform rate of interest at 20 per cent, "to curb their insatiable avarice," while he forbade his officials "to compel Christians to pay usury to Christians."[5]

During his long reign James I succeeded in advancing both commerce and industry in northeastern Spain. This commercial expansion was carried farther by his immediate successors. An episode which occurred shortly after the death of James aided Spain's commercial development very materially. This incident

[1] Swift, *op. cit.*, p. 229.

[2] *Supra*, p. 441.

[3] Swift, *op. cit.*, p. 230. In 1229 a provincial council excommunicated all those who sold arms and horses to the Moors. Finally in 1274 the popes induced James to forbid by royal decree the conveyance of arms, iron, lead, etc., to Saracen countries.—*Ibid.*

[4] *Ibid.*, p. 224.

[5] *Ibid.*, p. 233.

was the massacre of Sicilian Vespers in 1282, due, largely, to the political intrigues and machinations of Europe which culminated in the acquisition of Sicily by Aragon. The French rule in the island under Charles of Anjou was disliked to the point of irritation. The Sicilians were, therefore, ready to revolt upon the slightest pretext. The opportunity for an open rebellion was seized when on Easter Monday, 1282, a French officer offered an insult to a woman. The entire native population rose in arms and on that day massacred upward of four thousand men. Fearing the vengeance of Charles of Anjou, the Sicilians, to protect themselves, offered the crown of the island kingdom to Peter III of Aragon, who had the semblance of a claim to Sicily through his marriage to Constance of the house of Hohenstaufen in Naples.[1] In this manner the house of Aragon came into the possession of Sicily and as a consequence of this the Aragonese obtained effective control over the Levantine commerce.

By the end of the thirteenth century and during the early decades of the fourteenth, commerce and industry had assumed a substantial degree of stability. Internal commerce especially acquired greater importance. Thus we find Alfonso X establishing two annual fairs in Seville, each of thirty days' duration, and a third at Murcia lasting fifteen days. Valladolid and Segovia, as also Medina del Campo, which was centrally located between northern and northwestern Spain, became national trading-centers.[2] But now as formerly, though perhaps less frequently, personal insecurity along the highways and civil wars proved to be disturbing elements in the way of commerce. A more serious source of confusion was the occasional revival of the Jewish persecutions which often threatened to destroy the economic organization of society. Added to these as causes of industrial disorder was the anarchy which reigned with regard to the media of exchange and weights and measures. In many of the trading-centers coins of all nations and provinces were to be found circulating. As a consequence of this lack of uniformity in currency the evil of clipping and debasement of coins became a common practice. Nor did the penalty

[1] Lodge, *The Close of the Middle Ages*, pp. 24, 479.

[2] Altamira, *op. cit.*, II, 217.

of death by burning deter the people from this course. Very often even the kings resorted to coin debasement as the readiest means for paying their debts or increasing their revenues. In regard to weights and measures, Alfonso X tried to improve the situation by applying the weights and measures of some of the cities to certain commodities, and those of other places to certain other products; e.g., the yard measure of Castile was applied to cloth, while bread and wine were weighed and measured by the standards of Toledo.[1]

Considerable attention was given to public works such as the improvement of harbors and highways for the benefit of commerce. The most notable improvement in this direction was the building of river bridges which were of great economic consequence. The trade of ferrying people and products across the streams was a lucrative one and had been enjoyed exclusively by the clergy and the nobility. With the erection of bridges the enormous profits from this trade disappeared. Hence there was aroused among the nobles very strong opposition to bridge-building.[2]

No less marked was the progress in foreign commerce. By the middle of the fourteenth century, the Catalonians had obtained a footing in Famagosta and with the merchants of Narbonne, and Provençal enjoyed the privilege of free port entry. A few years later they obtained a *fondaco* in Marseilles.[3] The Catalonians had earlier obtained trading-posts in Italy. In 1335 they were established in Naples and carried on a flourishing trade in competition with the merchants of other nations. They were also established in Sicily, as is evident from the letters patent of Charles II authorizing the Catalonians to form colonies and appoint consuls in the island.[4]

On the other hand, we find that while the Aragonese adventurers were fighting at the head of Angevine troops, the merchants of Mallorca were transporting into the Mediterranean cities the wines of Calabria, the walnuts and chestnuts of Principat, and the grains of Apulia. They also visited regularly the ports of Ischia, Gaeta, Tarentum, and Manfredonia.[5] The port of Mallorca, whose eco-

[1] *Ibid.*

[2] Yver, *Le commerce et les marchands dans l'Italie*, pp. 141 ff.

[3] *Ibid.*, pp. 194 ff. [4] *Ibid.*, pp. 194 ff. [5] *Ibid.*, p. 219.

nomic resources had been developed early by the sturdy Moors, now possessed one of the most formidable merchant marines on the Mediterranean. Her sails numbered 360, with an aggregate of some 30,700 sailors. She traded with Italy, Rhodes, Egypt, Constantinople, and Flanders, exporting oil, cloth, and agricultural products in exchange for spices, gold, and slaves in great numbers. In the course of a brief period Mallorca grew in splendor and opulence. Palaces and mansions surrounded by vineyards and gardens studded the city. It became the favorite habitation of wealthy merchants who more than any other class in society, not excepting the nobles and clergy, enjoyed the respect of the entire community.

With the annexation of Mallorca to Aragon in 1362, the prosperity of the city began to decline. The powerful combination of the merchants was broken. Then followed the wars with Sardinia which cost her 140 vessels valued at a million dollars. These catastrophies ruined the magnificent city of Mallorca and brought about the destruction of the wealth of the Jews and Christians alike. The utter ruin of the city was completed by the plagues, earthquakes, and inundations which visited her successively; and thus disappeared one of the most formidable rivals of the Italians in the commerce of the Levant.[1]

By 1389, a quarter of a century before the Italians, the Spaniards of Catalonia obtained a *fondaco* in Bruges. Finally their trading-posts at foreign shores increased so greatly that the Spanish consuls, many of whom were eminent jurists and trained experts in commerce and finance, not only protected the varied interests of their own countrymen but also acted as mercantile agents for the merchants of other countries which had no representation at these stations.

The rapid advance of Spanish maritime commerce was in great measure due to the cultivation of the art of chart-making. The Catalonians surpassed all other nations in this art. They made a careful study of coast navigation. They corrected the charts of Norway, Sweden, and the Baltic coast, and were the first to describe accurately the Peninsula of Denmark.[2]

[1] Altamira, *op. cit.*, II, 230 ff. [2] *Ibid.*, p. 223.

Mention has been made in passing of the trade between Spain and Flanders. Regarding the origin of this commerce there is much speculation. It is very probable, however, that the first contact of Spain with Flanders was the result of a military expedition which the latter country undertook in 1147 in co-operation with England and France to aid the king of Portugal in his struggle with the Saracens.[1] A second possibility is that the Flemish pilgrims who were wont at this time to visit the shrine of St. Jacques de Compostelle in Galicia prepared the way for trade between the two countries.[2] There is very little doubt that these pilgrims took with them a certain amount of merchandise to sell or trade on the way in order to defray the expenses of their journey. They must have done likewise on their return, and thus an exchange of goods took place between Flanders and Spain. The pilgrims took either the sea or the land routes. Starting from northern France they went to Bordeaux, thence to Pampeluna, and finally to St. Jacques, by way of Burgos.[3] Precisely this same route was followed by the Flemish merchants who visited Spain in the fourteenth century,[4] when the Spaniards in their turn were permitted to have a consul at Bruges.

There is some documentary evidence of the presence of Spanish merchants in Flanders in the middle of the thirteenth century. From these documents it is clear that they visited the fairs in Flanders and were numerous enough to get a favorable hearing of their petitions against the abuses of trade.[5] Within a few years the Spanish and Portuguese merchants became powerful enough to act as agents for foreign trades at Bruges.[6]

Most of the evidence of this trade, however, is to be found in the records of piracy which was at its height at the beginning of the fourteenth century. Capmany as quoted by Finot cites an

[1] Finot, *Relations commerciales entre la Flanders et l'Espagne*, p. 2.

[2] It seems that the first pilgrim to Spain was Adalard, who in 1120 was attacked on his way by highwaymen. Here he vowed to found a hospital for travelers on reaching Spain if his life were spared. His wish was granted and he remained true to his vow.—*Ibid.*, p. 5.

[3] *Ibid.*, p. 12.

[4] Altamira, *op. cit.*, II, 218.

[5] Finot, *op. cit.*, p. 18.

[6] *Ibid.*, p. 29.

instance in 1323 when some Spanish merchants sailing toward Flanders were attacked and their ships and goods confiscated by English corsairs.[1] Despite these dangers, a number of Spanish merchants had established themselves in Flanders early in the century and enjoyed special royal privileges under Robert of Bethune.[2] These favors were extended in 1367 and again in 1384.[3] During the latter part of the thirteenth century there had been Spanish merchants in Ypres and Ghent exporting goods to Spain.[4] But piracy proved a grave menace to this Flemish trade. Finally, in 1350, the traffic received an abrupt check when a Spanish merchant fleet of forty galleys was attacked by English pirates in the Channel and the goods confiscated. This episode has given rise to endless disputes as to the responsibility of one or the other nation in the matter. But at least it seems clear that all the Spanish ships were carrying merchandise and were unarmed at the time, while the English vessels were well armed and fully prepared for battle.[5] After this event, a treaty of commerce was concluded between England and Spain and for twenty years neither nation interfered with the trade of the other.[6]

But already disintegration of Spanish commerce in Flanders had started. The Spanish traders began to migrate from Flanders. There were many reasons for this migration. In the first place the Black Death in 1360 had decimated the population and the traders were afraid to stay in the stricken cities. Secondly Flanders was preparing for a war with France and in order to strengthen her military position she had been obliged to levy excessively heavy taxes on Bruges and other large cities, thus discouraging trade in general. Lastly, as an inducement to the Spanish exodus, the Peace of Bretigny signed between France and England freed the

[1] Finot, *op. cit.*, p. 44.

[2] *Ibid.*, p. 48.

[3] *Ibid.*, p. 135.

[4] Altamira, *op. cit.*, II, 210.

[5] Finot, *op. cit.*, pp. 61 ff. In this connection it is well to observe that at this time England under Edward I was striving for the control of the sea. As an effective means of asserting his authority, Edward I levied exorbitant tolls on the traffic through the English Channel. The fact, therefore, that Edward I was with the fleet which attacked the Spanish merchants tends to support the inference that the object of the Englishmen was not piracy but to enforce the payment of these tolls.

[6] *Ibid.*, p. 53.

seas from the pirates of both nations and made safe the transportation of the wealth which the Spaniards had accumulated.[1]

By way of conclusion a few of the more salient points in this cursory survey of Spanish commerce and industry may now be indicated.

From what has been said it becomes evident that in a time of peace, agriculture developed to a large extent, stimulated especially by territorial expansions, the emancipation of the servile class and the building-up of home industries. The beginning of the thirteenth century already found industries spread throughout the peninsula. The progress in agriculture and industry was not, however, uniform throughout the country, owing to great differences in the soil and climate of the various regions. Consequently, in many cases production was limited to local needs and in some instances imports were necessary to supplement local production. Finally it must be noted that even under the most favorable economic conditions, prosperity was confined within very narrow limits and was enjoyed by the upper classes in society. The lower strata of the community, weighed down for the most part by exactions of tithes and services, led a wretched existence and often resorted to outright revolt to free themselves from economic bondage.[2]

The second point to be noted is that concerning the political organization of Spain. It will be observed that at no time during the period under discussion was Spain united under a single ruler. The country was divided into several small kingdoms. There was no national unity among her people. As a result of this, each kingdom imposed heavy duties on the imports from the neighboring kingdoms and thereby hindered the free movement of commerce. Whereas under a united political organization one region might have supplied the wants of another, under the then existing arrangement this was not possible. So we do not find Spain at this time presenting a united front against foreign competition. On the contrary, there is sufficient proof of the fact that

[1] *Ibid.*, pp. 95 ff.

[2] Altamira, *op. cit.*, II, 211–12.

in the latter part of the thirteenth century, foreign merchants established in Spain carried on a profitable trade by importing goods from their native countries.[1]

Lastly, it is interesting to note the economic policy which guided the people of this time. The first care of the kings of Spain was to find new sources of revenue for the royal treasury. They were at the same time conscious of the necessity of encouraging the commerce and industry of their dominions. Out of these apparently conflicting interests grew the two irreconcilable economic systems: the one, an extreme protection, and the other, a heavy taxation of local commerce and industry. For the consistently narrow economic policy of protection Barcelona led all the rest of Spain. Protection was extended to everything that was produced at home. It has already been pointed out that Barcelona was the first city under James of Aragon to resort to navigation acts to build up her merchant marine. But protection did not stop with this. As late as 1491 the sale of foreign manufactures of cloth was absolutely prohibited in Barcelona.[2] In the case of commodities which were not produced in Catalonia, no protection was offered. That is to say, Barcelona does not seem to have applied protection with a view to *create* new industries, but mainly to raise revenue and to protect those already in existence. Thus the importation of grain was encouraged by every means and its exportation strictly prohibited. As a result of this policy, Barcelona came to be the granary of the surrounding regions. She was always provided against any emergency touching food supply.

Along with this narrow economic policy were very strong tendencies on the part of the government of a purely paternalistic character. Notwithstanding the encouragement given to private initiative, the government took a very active part in promoting the welfare of the land. The public improvements carried out by James of Aragon and Alfonso X and the establishment of consulates at foreign ports are clear instances of this tendency. As a further evidence of the benevolent attitude of the rulers of Spain toward their subjects, the laws of Alfonso X may be referred to. In one of them are to be found certain precepts to be followed by a good

[1] Altamira, *op. cit.*, II, 211–212. [2] *Ibid.*, p. 226.

king who has the welfare of his kingdom at heart. Another law, passed in 1281, exempts articles of necessity and the tools of artisans from taxation.[1]

In spite of protection and governmental aid to industry, heavy tariffs were interposed at every point and proved to be almost insurmountable obstacles in the way of commercial advance. As a rule, no one—not even among the plebeians or the clergy—was exempt from local taxes. Not only were tolls levied on the town frontiers and along the coasts but heavy excise duties were imposed on articles of necessity. In addition to these tariffs there were the government monopolies, such as of salt and fisheries,[2] and the taxes on sales, which had a blighting effect on commerce. Probably, however, nothing was so vicious and nothing had such distressing results as the frequent practice of prohibiting the sale of grain from the lands of individual lay farmers until after the entire product from the lands of the clergy had been disposed of.[3] Further, there were grave discriminations in favor of one city as against another within the same kingdom. A favoritism of this nature destroyed the cloth manufactures of the city of Ampurias, the pretext of the government being that the goods did not conform to the size and color prescribed by law and that the city did not employ inspectors. Finally, the governmental regulation of wages, hours of labor, and terms of contract did much at this time to render industrial and commercial ventures uncertain and hazardous.

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[1] *Ibid.*, p. 212. [2] *Ibid.*, p. 209. [3] *Ibid.*, p. 224.

NOTES

"SOURCEBOOKS" IN ELEMENTARY ECONOMICS[1]

The appearance of Professor Fetter's *Source Book in Economics*, and the probability that the near future will see the publication of other volumes of readings for elementary-economics classes, are significant indications that the greater attention which has in recent years been given to the teaching function of economists is bearing fruit. The days of simply dosing students with three lectures a week, or of requiring them simply to grind out so many pages of text a day, are rapidly passing. While it may be a misconception of the nature of economics as a science to suppose that we can teach it with anything like the same rigorous, inductive scientific method possible and desirable in the natural sciences, there is very evidently a growing and vitalizing belief that even one course in general "elementary" economics can be made far more significant than the bulk of economics teaching in undergraduate courses in the past has been, that the student's interest may be more spontaneous and independently active, his knowledge-horizon of the actual world rapidly and valuably widened, his consciousness of the existence of great and difficult problems quickened, and that he can be brought to a realization that the solution of these problems properly depends upon a real understanding of economic forces and of those "theorizings" which the student even of today is so likely to regard as "up in the air" and therefore useless to any red-blooded citizen who proposes to apply himself to the actual world and not to metaphysics. Moreover, we are beginning, on the basis of actual experiment, to see that it is not too much to expect of students that they handle a certain amount of "raw material" and develop for themselves the power to see issues, to detect fallacies, and to note, not only where fundamental economic principles find application, but where difficulties stand in the way of their application, so far as actual reform is concerned. To these ends collateral reading of one sort or another is a necessary aid. One who sets out to get together such a volume or volumes of "selections" need not expect to please everybody. Every instructor of any experience will have his pet material which he will want his students to read,

[1] *Source Book in Economics*. By Frank A. Fetter. New York: The Century Co., 1912. Pp. 385.

either because he thinks it really the best to be had or because his inertia prevents him from changing, and he will be disappointed, perhaps disgusted, not to find in the new book what he thinks "every student should read." As there are several possible aims for an elementary course so there are several possible objects of a book of readings, and no one book can easily serve them all.

So far as the writer can see there are five, possibly six, objects which a sourcebook might aim at. First, it may simply afford a mass of interesting reading about industrial and social conditions and may be put together without much thought of correlation with the rest of the work of the course, simply to gratify in a measure the student's awakening curiosity and in turn to stimulate it. Such reading will be voluntary or at best optional with the student; the selections in such a book should be chosen from a wide field, in themselves interesting, and copious, since such reading should be both rapid and pleasurable. Secondly, the book may, in the main, aim to supply the student with a large amount of material descriptive of concrete economic conditions (industrial, financial, etc.), to help fill in that wide ignorance of the actual world's work which college Sophomores usually and naturally reveal. Such reading may not be as interesting as that just alluded to nor will it necessarily be as broadening, but it will contribute more to the direct classroom work, and it should so be arranged that an obvious relation between the text and discussions and the reading will be kept up. Thirdly, the compiler may aim to assemble matter closely and concretely illustrative of economic principles, without primary intention of widening the student's knowledge of industrial or commercial conditions. Fourthly, the book may contain a mass of raw material, designed as a basis for inductive study, formulation or proof of principles, solutions of problems, etc. And fifthly, it may include more or less extensive, or closely edited, selections from present-day writings in economic theory, introducing the student directly to the more important divergences of opinion, especially in distribution. Finally, it is conceivable that some teachers may wish to approach the more theoretical portions of the course historically, in which case a list of selections of classic passages from classic writers should be a valuable aid. Obviously any one set of readings that undertook to do all these things would be voluminous and expensive, and withal of little value unless very carefully organized and classified.

The difficulty with the first and second points of departure, and to a lesser extent with the third, is to get the students to do the reading. However interesting or illuminating it may be, a not inconsiderable

number of the class will neglect or ignore it. There is little time in class, even with frequent "quiz" or "discussion" sections, to deal with collateral assignments, unless they have been intimately correlated with the text or lectures. This fact affords ground for thinking that the needs of economics teaching could best be subserved, not by a bound volume or volumes of selections, but by a collection of unbound pamphlets with a temporary binder or a looseleaf cover, so that the instructor could make selections from the collection (which should cover a wide range) to suit himself. In any case the selections if they are to be of much value must be so definitely brought to the student's attention, and their significance so suggested in connection with each week's topic or topics of study, that he not only will want to do the reading but will do it intelligently, and bring it to bear upon the text and lectures, if there are any. Here is where the value of arrangement and editing comes in. To this end—making the reading really useful—the fourth point of view is indispensable. Students like to do their own thinking when they can, they like to solve problems, and to become involved in controversy over different points of theory, provided they see any application of the question or have any raw material to work on. If there is anything in the principle that we learn by doing, then the approach to an inductive method, which this fourth point of view indicates, should be at least one of the essential guides in the compilation of a book of "sources."

Coming to the fifth possible object—putting in the students' hands the essential parts of two or more diverging schools of economic thought —opinions will differ. Probably most teachers will hold that it is unwise to confuse elementary students by introducing them to controverted questions so early in their course. On the other hand, to give the student one school of thought, say on capital and interest, and to ignore the other, or to pass it up more or less contemptuously, or even to try merely to give an unbiased presentation of its outlines in a lecture or two, seems scarcely scientific. Some textbook writers try to be fair and broadminded in this matter, in that while they naturally present their own line of theory in full they do nevertheless recognize the existence of rival theories and make some attempt to tell their readers what those theories are and why they do not accept them. Other text writers, on the contrary, are supremely oblivious of the existence of any other possible approach to the truth than that which they offer. To judge by their texts, their own students will never know—unless they go on to advanced courses—that the view presented them is not the only view, or at least the only one not beneath notice. It seems to the writer that it is better

for students even to be a bit confused as to their theory, than to know clearly so much which *may* not be true. The only fair thing is to put before the student, in as compact form as may be compatible with adequate exposition of the essentials, both lines of thought. For this reason a sourcebook ought to contain one section on theory. The objection which may be at once made, that this goes beyond what we can reasonably expect of elementary students, will not hold water. The biggest injustice teachers of college Sophomores are doing to them is to require and to expect too little from them. The writer is convinced that with proper presentation and proper material before them—especially with the instructors' assistance in pointing out where the real significance in social organization and social reform of the diverse theories lies—students will eagerly try to consider the merits of the two theories. And in that case their interest will last beyond the final examination in the course.[1]

We arrive at the conclusion that a sourcebook which should meet the requirements of a serious course can best be built up on the foundations of the third, fourth, and fifth aims above mentioned, namely to present (1) a large amount of matter concretely illustrative of economic principles (in such parts of the subject as cannot with advantage be taken up inductively), (2) more material, of a somewhat different nature, as a basis of inductive study, solution of suggested problems, etc., and (3) a considerable number of selections representative of the opposing sides of the more important controverted lines of theory. The possible aim previously first cited can almost certainly best be left to library reading—and the instructor should not be afraid to put on his "reserved" shelves some recently published books even if they are somewhat "popular" in tone. The second aim—widening the student's general knowledge of the industrial and commercial world—will be sufficiently well fulfilled if the selections illustrative of economic principles (of organization and process) are copious and varied as they should be.

The bases of judgment of a book of readings will then be four: Has the compiler had in mind the best aims and methods of economics teaching? Are the selections in range and subject-matter those which will best contribute to these aims and methods? Is the arrangement of the selections such that they can be used without overmuch confusion? Are the selections edited in such a manner as to reveal to the students their object and point? From one point of view it is not fair to criticize

[1] Cf. Professor C. W. Wright's remarks on this subject in *Papers Presented at the Second Conference on the Teaching of Economics*, Chicago, 1911, p. 11.

a book on any other basis than the object its author intended it to fulfil. But in this question of the teaching of elementary economics we think it entirely fair to ask whether the author has given due consideration to his pedagogical aim.

Professor Fetter in his *Source Book* has very evidently taken the third of the possible aims we have suggested. His object is to give the student material illustrative of the principles he wishes him to grasp. So far as the principles the author has had in mind are concerned there can be no doubt that his selections are very well made indeed. And they do incidentally what such selections should do—widen the student's knowledge of his industrial environment. But a disporportionate amount of attention is given to some things and none at all to others. The selections are in large part not unnaturally such as lend aid to Professor Fetter's own economic views. In the measure that anyone may think that other views are more valid, or at least worthy of respectful consideration, he will find the *Source Book* ill-balanced for his use. A case in point is the selections on "Capital and Investment." Of three selections on this head, one in devoted to speculation, and the other two are evidently inserted to emphasize the identity of rent and interest. Nowhere is there any word about real capital or saving or the relation of saving to the supply of real capital and the interest rate. So, too, a ten-page selection from Shaler's *Man and the Earth* is meant to bear in upon the student the editor's conviction that land and capital are of the same category because (among other reasons) land can be increased in amount by draining the swamps and diking the sea. The editor's special interest in "price" has also led him to give what some will regard as undue amount of space to that topic. We look in vain for anything bearing on such matters as the relation of population to general wages (in spite of Professor Fetter's very admirable understanding of the significance of the population problem), labor legislation in general, legal minimum wages, workmen's insurance, trade union organization or policy (with the exception of one brief extract on minimum rate policy), public ownership or control of public utilities, franchise values and their taxation, or the simplest forms of corporate financial organization, interlocking directorates, holding companies, etc.—to take only a few instances of omissions. Considerable space could have been saved by omitting the selections on the origin of markets, odd prices in retail trade, and the wages of farm labor (the object of which selection is not clear). On the other hand, the large attention to agriculture as a field for illustrative material is commendable, as is the inclusion of a great deal of matter

bearing on the cost of living. So, too, all the selections under "The State and Industry" are admirable. We doubt, however, if the book is comprehensive enough in its choice of material to give much aid to those who wish not only to illustrate principles, but to encourage inductive thinking. The book is not big enough, and the selections do not cover a sufficiently wide range of topics.

The problem of arrangement is a difficult one, since the more the readings and the text in use differ in order and division of subject-matter, the more friction there will be in using them together. Professor Fetter has simply ignored this bother by arranging his selections in the same order and under practically the same headings that he uses in his "Principles." Teachers who use other texts will find some trouble in using the *Source Book*, since Professor Fetter's arrangement is peculiar unto himself.

The notes at the head of the selections are useful, though in some instances they fail to indicate in any way what may be the significance of the selection. But the editor is careful in the main not only to suggest the connection of the extract, but to explain the significance of the source from which it is taken. The material has been drastically shortened in many cases. In some instances, as in the complete omission of any of the diagrams and maps in Hurd's *Principles of City Land Values*, this weakens the selection markedly.

The book is correctly named a "sourcebook," for the editor has confined his selections almost entirely to official sources. He draws heavily from the reports of the Tariff Board (five selections aggregating 45 pages), and the Commissioner of Corporations (28 pages). Other sources include publications of the Department of Agriculture, state experiment station bulletins, the British Board of Trade, and the Interstate Commerce Commission.

The book is excellently edited and, accepting the editor's point of view, admirably chosen and arranged. Our chief quarrel is with the point of view—its failure to recognize other viewpoints, and its brevity, which results partly from careful editing, partly from the non-inclusion of desirable topics and the entire omission of material for truly inductive study. A class devoting three hours a week for a year to economics ought to handle a text and about three times as much collateral reading as is here given.

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WASHINGTON NOTES

THE NEW TARIFF

The result of the winter's deliberations of the Ways and Means Committee was at last announced, when Chairman Underwood introduced in the House, on April 7, H.R. 10 (63d Congress, 1st session), an omnibus measure intended for the revision of the whole tariff from beginning to end. The new bill has already been acted upon by a Democratic caucus and its adoption in the House substantially as it stands is therefore practically assured.

The terms of the Underwood measure are of very great interest from the standpoint of tariff history generally, as well as of immediate significance because of the fact that they are to form the basis of the new revenue measure which will undoubtedly control during the next four years at least, and perhaps for a much longer period. Fundamentally, the bill is based upon the measures presented during the past two sessions of Congress, some of which were speedily vetoed by President Taft. It is, however, in many respects more radical than they, making deeper cuts in the duties on textiles and metals. A change of policy is seen in the provisions which establish a rate on sugar equal to about three-quarters of the present duty, while shifting raw wool from a dutiable status of 20 per cent to the free list. In some other instances rates have been raised above those fixed in the original Underwood measures, but for the most part the substance of those measures has been kept, and the ideas which control in them have been applied in framing the revision of the other schedules upon which nothing had been done prior to the present time.

A brief review of the rates by schedules is the most direct method of appreciating exactly what has been done.

Schedule A, dealing with drugs, chemicals, oils, and paints, has been worked out along the same lines that were followed in the bill of last summer, except that the principles which were then applied have been carried farther in order to overcome some difficulties that had been found to exist in the schedules of rates and to offset certain inconsistencies that had been detected. The following representative list of items makes a comparison between the ad valorem equivalents of the rates levied on the specified items in the former measure and in Schedule A of the new one:

	Equivalent ad valorem Rates Per cent	
	Present Rate	New Rate
Boracic acid	78.70	21.43
Glue	35.06	14.39
Red lead	60.35	25
Medicinal preparations	25	15
Drugs	12.55	10
Olive oil	35.18	21.05

The average ad valorem rate in Schedule A is 19.64 per cent as against 25.91 per cent in the present law.

In Schedule B, which deals with glass, tiles, earthenware, china, and a variety of allied objects belonging to the same class, there has been a general average cut of fair amount in the old rates. The notable features of the new schedule are seen in the treatment of glass and in the method of dealing with earthenware and china. Both window and plate glass have been sharply reduced, the cuts amounting to something like one-half of the original rates of duty. Earthenware has been given a moderate reduction, the old set of tariff rates not having been very high in the first instance. China and high-grade pottery are very little changed, the manufacturers having apparently convinced the Ways and Means Committee that they needed the existing protection. An interesting feature about the glass tariff is that it has been kept practically upon a specific duty basis. In the case of earthenware and pottery a new classification has been introduced based upon the transparency or translucency of the ware. The following list of illustrative articles gives an idea of the basis upon which the old and new rates may be compared, both sets of rates being reduced to an ad valorem basis for comparative purposes:

	Equivalent ad valorem Rates Per cent	
	Present Rate	New Rate
Brick	30.23	10.28
Tile	47.84	23.36
Asphalt	37.05	9.62
Earthenware	24.67	15
Window glass	46.38	28.31
Plate glass	63.95	38.45

The average ad valorem rate in Schedule B is 33.17 per cent as against 50.72 per cent at present.

In schedule C, relating to metals and manufactures thereof, the Underwood bill of last year has again been taken as a basis. There are, however, some important changes both upward and downward, while some significant items have been transferred to the free list. Steel rails are now free, and cuts have been made in four of the heavy products of the furnace at a number of important points. In general, the coarser items included in the metal schedule have been placed upon an even lower basis than that which was assigned them a year ago. There are a few advances in the cases of higher products, such as cutlery of various kinds. Machinery classed as a luxury, such as automobiles, has a fairly high rate of duty, the automobiles themselves being given a rate of 40 per cent. Other machinery, considered necessary, such as sewing machines, typewriters, cash registers, and the like, is put on the free list. After a long struggle over lead, that item was retained at a duty of 25 per cent. At one time it was understood that this rate had been raised and at another that it had been eliminated entirely, leaving lead on the free list.

The following illustrative list of items exemplifies the metal schedule:

	Equivalent ad valorem Rates Per cent	
	Present Rate	New Rate
Pig iron and slabs	16.35 to 17.79	8
Beams	23.20	12
Forgings	30	15
Bicycles	45	25
Razors	77.68	35

The average ad valorem rate in Schedule C is 20.19 per cent as against 34.35 per cent at present.

In Schedule D, relating to lumber and lumber products, a liberal method of treatment is followed. Rough lumber goes to the free list. The remaining items, such as sawed boards, barrels, and the like, are, however, obviously necessities in the ordinary sense of the term, and they are treated differently from the sugar substitutes and sugar products which were kept on the dutiable list. The rates on them are cut, but are retained at a revenue-yielding point. The following illustrative list of items shows how the chief products in this schedule have been dealt with, as compared with the same items under the old tariff:

	Equivalent ad valorem Rates Per cent	
	Present Rate	New Rate
Sawed boards	12.75	10
Casks, barrels, etc.	30.00	14.77
House furniture	35	15

The average ad valorem rate in Schedule D is 3.59 per cent as against 12.46 per cent at present.

In Schedule E, dealing with sugar, is presented one of the most sharply controverted questions in the whole range of duties. As is well known, the bill of last year put sugar on the free list. After lengthy argument on the subject, it has been decided to follow the plan of putting the old high duties upon sugar products and substitutes, such as saccharine, sugar candy, and a few others, and cutting sugar, for the present, only 25 per cent below last year's rates, with the proviso that after three years it shall go upon the free list. This, of course, means a reduction in revenues, but not a very serious one.

In Schedule F, relating to tobacco, another phase of the method of framing the new tariff is presented, for here there are practically no changes from the existing rates. This failure to alter the rates in any material degree is based upon the belief that the old schedules are good revenue-producers and that there is no practical reason for altering them, inasmuch as business conditions are adjusted to them, while tobacco is certainly not a necessity in any except an artificial sense, and may probably be classed as a luxury and hence made to pay a high rate of duty.

In Schedule G, agricultural products are dealt with. Many rather sweeping reductions have been made throughout this schedule, although not all that will be demanded by tariff-reformers. In general, the Ways and Means Committee has attempted to follow the main principles that were embodied in the Farmers' Free List bill of two years ago, transferring to the free list such items as meats, bacon and hams, flour, and so forth, and retaining on a dutiable basis only those items which are considered to have a special claim to protection or those in whose case the call for the retention of the tariff was so strong as to be practically irresistible. In the following list of articles is furnished an illustration of the working of the new bill as it affects representative items, in comparison with the working of the existing tariff on the same items:

	Equivalent ad valorem Rates Per cent	
	Present Rate	New Rate
Horses	25	10
Cattle	25.07	10
Sheep	16.41	10
Barley	43.05	23.07
Macaroni	34.25	23.81
Hay	43.21	26.67
Fruits	27.21	15.38
Figs	51.53	42.10
Lemons	68.85	24.03
Live poultry	13.10	6.67
Vinegar	33.03	17.35

The average ad valorem rate in Schedule G is 16.87 per cent as against 29.01 per cent at present.

In Schedule H, relating to wine, liquors, and alcoholic drinks generally, the same principles are exemplified as in the tobacco schedule. The rates on imported wines, whiskies, and beers, as well as on brandies, champagnes, and the like, have become adjusted to the needs of trade and to internal revenue taxation. They are high, but are producing a large income and are hence regarded with favor. Therefore, as in the case of the tobacco duties, few changes have been made, on the ground that the rates touch items that are certainly not necessaries and that probably are to be ranked as luxuries.

Schedule I, dealing with cotton textiles, will probably be one of the most critical points in the new tariff. Most of the paragraphs have been kept practically on the same basis as in the Underwood bill of last session. An important change is seen in the cotton-cloth section, however. In this section the Underwood bill provided for a threefold classification of cotton goods based upon the content of yarn of a given number or numbers in the cloth. This is now changed to a seven-fold classification, intended to readjust the rates of duty on the cloth much more extensively, according to the fineness of the yarn used in its production. The highest rates on cloth composed of the finest qualities of yarn are not, however, much raised, but are kept at about the same level as before, so that the rates have simply been graduated better than hitherto. As the cotton cloth is the basic product which sets the pace for all others, some few additional changes have naturally been introduced in other clauses of the schedule. The following list of illustrative items shows

the nature of the changes that have been made in Schedule I, compared with rates in corresponding articles under the present law:

	Equivalent ad valorem Rates Per cent	
	Present Rate	New Rate
Cotton thread	31.54	19.29
Spool thread	22.95	15
Cotton cloth	42.74	26.69
Waterproof cloth	50.56	25

The average ad-valorem rate in Schedule I is 30.48 per cent as against 45.51 per cent at present.

Schedule K, relating to wool and wool products, has been possibly the most sharply debated set of rates in the whole tariff. The Underwood bill of last year levied a rate of 20 per cent on raw wool, and its rates on fabrics ran up to about 55 per cent as a maximum. In the bill now proposed, raw wool is made free. This change has made possible in other clauses of the schedule rather more extensive reductions then were attempted in the original Underwood bill. Except for these relatively minor alterations, the rates on fabrics are kept very much as they were in the bills which passed the House a year ago. The following list of principal items in the wool schedule is intended to illustrate the relative differences in effect of the existing tariff act and of the present proposed plan:

	Equivalent ad valorem Rates Per cent	
	Present Rate	New Rate
Raw wool	43	Free
Yarns	79.34	20
Blankets	72.69	25
Flannels	93.29	25 to 35
Clothing	79.56	35
Webbings	82.7	35
Carpets	60 to 82	20 to 35

The average ad valorem rate in Schedule K is 18.50 per cent as against 55.98 per cent at present.

In Schedule L is afforded an exemplification of another of the principles of tariff-making that are being applied in this revision. Schedule L

deals with silk and its manufactures, which are clearly classed as luxuries. Inasmuch as they are so regarded, the new bill maintains them on a dutiable basis, at rates that are very nearly as high in many instances as those which now exist. In other words, the silk-makers are given to all practical intents and purposes the equivalent of their existing protection. A striking change has, however, been made from the present law in that the basis of specific duties which was introduced at the time when the tariff act of 1909 was under consideration is now entirely abandoned and in place of it the schedule as a whole has been put upon an ad valorem footing. This change was protested against by the silk-makers when they were before the Ways and Means Committee. The following illustrative list of important items compares the operation of the whole schedule with that of the corresponding rates in the existing law:

	Equivalent ad valorem Rates Per cent	
	Present Rate	New Rate
Partly manufactured goods	21.01	15
Spun silk yarn	37.09	35
Sewing silk	35	15
Silk goods	52.58	50
Silk handkerchiefs	50	40
Ribbons	50	40
Silk yarns	41.79	35
Braids, embroideries, etc.	68.49	60

The average ad valorem rate in Schedule L is 43.98 per cent as against 51.54 per cent at present.

In Schedule N, which deals with sundries, a variety of different principles of tariff-making are exemplified. Rates are to be left relatively high on articles which may be classed as luxuries, provided that such articles are good revenue-producers. Necessities are cut considerably throughout the schedule, although in varying degrees. The following list, giving a few illustrative items, compares the working of the new schedule with the corresponding rates in the existing law:

	Equivalent ad valorem Rates Per cent	
	Present Rate	New Rate
Trimmed hats	50	40
Brooms	40	15
Jewelry	75.74	60
Precious stones, uncut	Free	10

Schedule N is one of the few that has been raised, its average ad valorem rate being 33.26 per cent against 24.32 per cent for the present duties.

The free list will probably be of more general interest than any one of the individual tariff schedules. A number of items have been taken from it, but a great many and more important ones have been added. It has been sought to keep the same items that were made free in the Farmers' Free List bill, including shoes, barbed wire, and a number of others, while adding largely to the free list by taking items from the dutiable schedule. Where commodities have been shifted to the dutiable schedules from the free list, the action has been due to special considerations, on the supposition that revenue could be raised without injuring the position of the general consumer.

The articles to be admitted free under the new bill were imported in 1912 to an aggregate value of $102,534,466, and paid duties amounting to $24,718,329. The articles which are transferred from the free list and are made to pay duty under the proposed law will, it is estimated, be imported to the value of $42,595,500, and pay duties amounting to $4,647,055.

The act contains several other very interesting provisions, among them being a revision of the present customs administrative law. In drawing up this revision, the effort has evidently been made to secure a rigid application of the law in a way that will undoubtedly insure the careful application of the rates of duty that have been fixed, so that the Treasury will receive all that it is entitled to obtain from the importations actually made at the proposed rates. Discussion of the detailed changes in the customs administrative act would be a lengthy and technical process, but one which would result only in more fully illustrating the general remark already offered with reference to the content of the schedule as a whole. In addition to this revision of the customs administrative section, the new bill contains a provision for reciprocity treaties to be negotiated by the President with foreign countries and to be subsequently ratified by Congress. The maximum and minimum section of the Payne tariff law is eliminated, the reciprocity section taking its place. Additional to these sections some new legislation is included in the bill whereby a discount of 5 per cent from the rates of duties fixed in the measure is to be allowed whenever the fact that such goods are imported into the United States in American vessels shall be established. This scheme, it is supposed, was planned for the purpose of encouraging the growth of the American merchant marine, although in the opinion of most persons it will be far from contributing materially to that object.

Trade with the Philippines is placed upon an unrestricted basis, thereby abrogating the limitations upon the movements of sugar and tobacco which are prescribed in the present law. Finally, a new series of provisions for the granting of drawbacks, for the maintenance of bonded warehouses, and for smelting in bond has been introduced. Altogether the bill, in spite of some very serious defects, constitutes an important step forward in the direction of revenue reform.

It is, however, already clear that severe criticism will be directed at several aspects of the measure. Some of the chief of these may be enumerated as follows:

1. The enlargement of the free list is complained of by those who believe that under the theory of a revenue tariff very few articles should be allowed to escape without taxation.

2. The reduction of duties on finished products while tariffs are imposed on a number of the raw materials entering into such products, is complained of by domestic manufacturers.

3. It is alleged that in some lines of manufacture the cuts have been too drastic upon manufactured goods, independent of the treatment of the raw materials of which they are made.

4. Various mistakes are asserted to have crept in whereby special favors would be granted to given classes of industry. An example is seen in the provision whereby wheat pays a duty of 10 cents a bushel whereas flour is free under certain circumstances. Another example is seen in the establishment of a tariff duty on goat's hair at the same time that wool is placed on the free list.

As a result of the introduction of the bill and of the prospect of several months' debate on the measure, it is now predicted that a period of quiet business and of liquidation will ensue.

BOOK REVIEWS AND NOTICES

English Farming, Past and Present. By ROWLAND E. PROTHERO. London, New York, Bombay, and Calcutta: Longmans, Green & Co., 1912. 8vo, pp. xiii+504. $4.00 net.

Those who are acquainted with Mr. Prothero's *Pioneers and Progress of English Farming* (1888)—and there are none who can lay claim to familiarity with the literature of English agriculture who are unacquainted with that interesting and stimulating volume of nearly a generation ago—will welcome with especial relish this new volume, which, though in a sense it is a second edition of the earlier volume, yet contains so much new material with the old material so largely rewritten as to justify its publication under an entirely new title.

Chap. i of the earlier volume, entitled "Self-Sufficing Farming," has, with the inclusion of much new subject-matter, been expanded into two separate chapters in the new volume, entitled "The Manorial System of Farming" and "The Break Up of the Manor," which together form one of the most concise and satisfactory accounts of the feudal system and its decay and dissolution, on the strictly industrial or agricultural side, with which the reviewer is acquainted. A little more emphasis might have been placed, in the description, on the business organization and management of the manorial estate, though perhaps the tendency of the author throughout to emphasize the social rather than the purely business side of agriculture is responsible for this omission. The title "Farming for Profit" (chap. ii of the earlier volume) has been retained for chap. iii of the present volume—a much-enlarged discussion of the period of early enclosure for pasture and sheep-grazing, which constituted the first general phase of the development of capitalistic farming in England. Chap. iii of the previous volume, on "The Seventeenth Century," has, following a new chapter on "The Reign of Elizabeth," been expanded into two chapters entitled respectively "From James I to the Restoration" and "The Later Stewarts and the Revolution."

The succeeding chapters of the earlier volume, which discuss the contributions of Tull, Townshend, Bakewell, Coke of Holkham, Arthur Young, and others to the development and diffusion of the elements of agricultural science and practice in England, are closely paralleled in

the present volume. It is here, perhaps, that the revision has been least complete—and naturally enough, as these chapters were the heart of the historical parts of the earlier volume.

Following these chapters is another region of marked expansion in the new volume, comprising separate chapters on the "Corn Laws," the "Highways," the "Rural Population, 1780–1813," "Agricultural Depression and the Poor Law, 1813–37," and the "Tithes." The next to the last of the chapters just enumerated replaces, in part, chap. ix, "Science with Practice, 1812–45," in the earlier volume. Chap. x. of the earlier volume, "Science with Practice, 1845–73," has been replaced in the main by chap. xvii of the present volume under the title of "High Farming, 1837–74," where again the changes have been minor. The chapter in the earlier volume on "Agricultural Depression, 1873–87" has been enlarged and brought down to date in the new volume under the title "Adversity, 1874–1912." A concluding chapter (chap. xix) brings the formal part of the volume to a close.

There are, however, in the later volume, considerable omissions of material included in the earlier, and these omissions are quite as significant as the expanded portions. These omitted portions include the chapters on "Peasant Proprietors" (with its account of the French small holders), "Landlords and Natural Growth," "Distribution of Land," "Protection and Tithe Rent-Charge," "Legislative Aid," "Fiscal Relief—Local Taxation," "Self-Help not Protection," and "Agricultural Labourers." Portions of these omitted chapters are included in other chapters of the new volume already enumerated—particularly those on "Corn Laws," "Tithes," "Rural Population, 1780–1813," and the concluding chapter; but large portions are entirely omitted. In general the author has excised those materials which are not historical or which do not have to do with English conditions, past or present. Doubtless these omissions are explainable on the basis of his own statement in the preface of the present volume that the earlier volume was written "with the confidence of comparative youth and inexperience" and that it "expressed as certainties many opinions which might now be modified if not withdrawn." Of similar tenor is the sentence (p. 393), "Conjectures as to the future of farming, or programmes for its reconstruction, belong rather to prophets and politicians than to chroniclers." But the author declares (in the Preface) that time has only strengthened the two convictions, which were his motives for the writing of the original volume—that the small number of persons who owned agricultural land might some day make England the forcing-bed of schemes for land-

nationalization, and that a considerable increase in the number of peasant ownerships, in suitable hands, on suitable land, and in suitable localities, was socially, economically, and agriculturally advantageous. Again, though he is of the opinion that there has been a partial recovery of agriculture from the acute depression existing when the earlier volume was published, he regards the political outlook as "infinitely more menacing" at the present (p. 398). He views with alarm the apparent tendency of the landowners to withdraw from participation in public affairs in the rural districts and their inability or indisposition to unite on a "comprehensive programme of land reform on broad and general lines, while maintaining the principle that private ownership is the only satisfactory system for progressive land cultivation," against those who would add still heavier burdens to those encumbrances under which landowners are now staggering or who would even abolish private property in land entirely. He believes that while the condition of both farmers and agricultural laborers has improved since 1888, conditions for the landlords have materially changed for the worse; and he is of the opinion that not only do landlords and tenants have common interests and face common dangers, but that the attack on private ownership in land threatens to be disastrous, most of all, to the agricultural laborers. For these and other evils—existing or anticipated—he thus offers the same remedy as in the earlier volume, namely, that of small holdings for the agricultural laborers and others. But he puts it forward now with less enthusiasm, elaboration, and illustration, and perhaps with less confidence in its efficacy. The results, so far, of the Small Holdings Act are declared to be limited, and necessarily so on account of its faulty methods.

It may be said that while many pages are occupied with a discussion of the relative advantages and disadvantages of the disappearance of the commons and of the open-field farms, the conditions surrounding the resulting class of agricultural laborers receive less full treatment, historically, than might have been expected from the author's admission that the conferring of the parliamentary franchise has made the agricultural laborers the most important of the three classes which make up the agricultural interest (p. 411). The fact that this phase of the subject has received special treatment by Kebbel, Heath, Hasbach, and others may account for the less full treatment in the present instance.

No part of the new volume illustrates the larger emphasis upon history and the relatively smaller attention to present and prospective conditions which characterize the revision as a whole than the chapter

on the Corn Laws. The author's treatment is eminently judicial and worthy of the historical spirit. The mediaeval Corn Laws he finds to have been based on "principles of morality, if not of religion," and to have been "akin to the laws against usury" and a part of the legislation to establish "just" prices, in which the interests of consumers, producers, and the nation were alike collectively and continuously considered. This characterization of the Corn Laws in general he extends down to 1815. Nevertheless, though he believes that the Corn Laws in earlier days brought steady prices to consumers (p. 254), he concludes that the whole series of restrictive legislation of which the mediaeval Corn Laws were a part eventually defeated its own object (p. 256). During the first sixty-five years of the eighteenth century, inasmuch as England was in the main an exporter of grain and because of the fact that in case of bad seasons and crop failure the territory on which England had to draw comprised the neighboring areas in Europe, which were usually affected by the same climatic conditions as existed in England, the author believes that consumers were not injured by the duties on imports, while they profited somewhat in years of scarcity by the large reserve which the bounty on exports helped to maintain; and he considers it probable that the reign of George II was "the nearest approach to the Golden Age of the labouring classes" (p. 262). After 1765, however, when England henceforth ceased to be a corn-exporting country and became a buyer of foreign corn, there ensued remarkably high prices for grain, a growing importation of foreign corn, and widespread misery among the wage-earning population—a condition which the Corn Laws were futile to alleviate even if they be absolved from responsibility for the scarcity and high price of food. As a matter of fact, the author regards the unfavorable seasons and the war as the most important reasons for the dearness of corn during the period 1765–1815, and he gives it as his opinion that during the whole period from 1689 to 1815 "the marked deficiency or abundance of the harvest in any single year produced a greater effect on prices than was produced by the Corn Laws in the 125 years" (p. 253). Beginning with 1815 the Corn Laws were frankly protective, but, according to the author, could not have been instrumental in shutting out exports and in sacrificing the interests of consumers had it not been true that conditions had now changed and an additional and cheaper supply outside of England become available, particular reference being made in this connection to the increasing supply in the New World, where the crops were not affected by the same climatic influences that simultaneously determined the yield in England

and on the Continent of Europe. On the other hand, with the disappearance of the open-field farmers and the growth of the manufacturing class, the interests of the producers of corn came to be represented by a "comparatively small and dwindling class of landowners and farmers" instead of by the interests of the great majority of the population as had been the case previously. Accordingly, though the doctrine was almost universally accepted that "every prosperous nation must in ordinary seasons rely for its means of subsistence on its own resources, and must meet the growth of numbers with a corresponding increase in the supply of food" (p. 272), the logic of the situation finally resulted in the discrediting of the Corn Laws and in their ultimate abrogation.

There is no discussion of the tariff as a present-day problem in English agriculture.

In the chapter on the "Tithes," the historical origin of tithes is traced, their development as a legal liability shown and the conditions which led to the Tithe Commutation Act of 1836 described. How the tithe, before the passage of this Act, tended to retard progress in agriculture is well brought out, and the passage of the Act is regarded as an important cause of the revival of prosperity in agriculture that began about 1836. Another cause of the more prosperous conditions which date from that time was the reform of the poor law accomplished in 1834, which is treated in chapter xv.

The main object of the volume as a whole—as of the earlier volume—the author declares in the Preface to be "to suggest that advances in agricultural skill, the adoption of new methods, the application of new resources, the invention of new implements, have been, under the pressure of national necessities, powerful instruments in breaking up older forms of rural society, and in moulding them into their present shape." The work abundantly justifies the object for which it was undertaken. It is a pleasure to testify to the thoroughness with which the author has delved into the various sources in the effort to throw a flood of light on every phase of the development of agriculture in England. Not only have the ordinary sources having to do with agriculture directly been utilized, but many other materials have been worked which deal with agriculture only incidentally and the contribution from which is frequently of especial value simply because of the fact that it represents unconscious testimony. Particular attention may be called in this connection to the fact that the volume is a conspicuous illustration of the service that literature may afford with reference to the investigation of an industrial subject. From drama and rhyme and song

the author has drawn for the purpose of throwing light on conditions otherwise obscure or for illustration of a point already established. The result is that the volume not only presents a complete and full account of the subject treated but it presents it in exceedingly attractive and readable form. It fills in the outline of the earlier volume with a fulness of detail and with a faithfulness of presentation that leave nothing to be desired—unless there be regret that in the fulness of detail the clearness and definiteness of generalization which characterized the earlier volume have been to a certain extent lost. A little attention to summary here and there would have been helpful, but perhaps the greater caution that has come with advancing years and the lessened disposition to put a matter in sharp outline or without modification have been responsible for what seem to be less clearly defined conclusions in the new volume.

The appendices have been similarly expanded, excised, and brought down to date. A feature is the annotated "Chronological List of Agricultural Writers down to 1700," which appears in a somewhat changed and considerably enlarged and improved form in the new volume.

A double-column index covering some 35 pages adds greatly to the usefulness of the book.

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Increasing Home Efficiency. By MARTHA B. and ROBERT W. BRUÈRE. New York: Macmillan, 1912. 8vo, pp. 318. $1.50 net.

This book, composed essentially of a collection of articles published during the last two or three years in the *Outlook*, *Harper's*, and several other magazines, is in the main an argument for more scientific expenditure of the middle-class family income, with a view to increasing the social efficiency of the family. The budgets of 76 middle-class families have been collected and are analyzed in the book in a way intended to bring out the most effective combination of the various items included in the budget. To be socially efficient the home "must keep the members of the family in a state of body and mind and happiness that will make it possible for them to work at their highest capacity for the greatest number of years; it must give to the community children that are well fitted for citizenship and equipped to push civilization along;

and it must turn out this product on an economical expenditure, not of money alone, but in brain and muscle as well."

The relegation to the factory and the shop of everything that can be done outside of the home is strongly urged. For such tasks as must be performed within the walls of the home labor-saving devices rather than the employment of servants are advocated (p. 101). With a view to making possible the freer use of these, women must interest themselves in politics and in this way control factories and shops and especially public-service corporations, all of which become a part of home affairs to an increasing degree (pp. 102 ff.). The co-operative market and the use of the market-basket by the housewife are frowned upon as not worth the trouble and time involved in their operation and use. Domestic science should be taught in our schools; but we must not rely on the knowledge of the individual for protecting himself against impure or inferior goods. Housekeeping can and should be made a "culture-study" (p. 173). Two chapters are devoted respectively to "The Cost of Children," and "Launching the Child." The latter is in the main an argument for scientific study of supply and demand in the different lines or professions open to the young person about to be "launched," with a view to the avoidance of overcrowding in any given line. "A man's choice of profession," we are told, "is not his own business. It is a social question . . . ." (p. 262). Just how society is to intervene and direct him we are not informed.

A chapter on "Savings and Efficiency" argues that, in general, saving by the middle class is accomplished at a sacrifice that outweighs the advantage derived. "And how this middle class does try to save!" (p. 281). "And the remedy for this evil is a universal system of scientifically administered insurance against sickness, unemployment, and old age." The conclusions of the authors are perhaps best summed up in the sentence: "What we need most today is the domestication of business and the socialization of the home" (p. 292).

In style, the book, as might be expected from what was said in the opening sentence of this review, is of the type which aims at attracting attention rather than at scientific accuracy. That it contains many excellent suggestions in a field for thought too long neglected cannot be denied. That one is wise in an attempt of this kind to limit one's study and suggestions to a certain part of the field, such as the middle class, with incomes ranging from $1,000 to upward of $15,000, as is here done, will also be readily admitted. But it appears little short of absurdity to take the position that it is futile to study, with a view to

increasing social efficiency, the budgets of families whose incomes fall below $1,000 or $1,200—"the financial minimum for social efficiency" (p. 29)—"because we are convinced that no supplemental expenditure of brain and muscle can enable them to rise to the level of social efficiency" (p. 27). It is well enough to argue that no family should have less than $1,200 as an annual income under present standards and prices. It should have that, and as much more as social and economic progress can make possible. But in the face of the fact that the majority do not have it and there is no hope of any sudden or immediate transformation which will raise the minimum for the worthy and industrious family to this figure, is it not wiser to recognize that "social efficiency" and even "bare decency" are relative matters, more like our concept of civilization itself than like a Promised Land reached by crossing an arbitrary boundary line? Following out the authors' analogy of factory efficiency (p. 25), this is not something which remains long at zero and then at a given point jumps to 100 per cent.

In regard to savings it would seem that the book errs in at least two respects. In the first place the instinct or the tendency to save among the middle class cannot be estimated from a study of the few who are in position to submit family budgets. These would naturally constitute among their class the element which plans ahead; and saving is naturally a part of this plan. Then again the importance of saving, both from a social and individual standpoint, is underestimated. Certainly such a statement as the one on p. 282 is misleading, which declares that the average savings for the clerks whose budgets are here considered, $381.02, would if continued for 20 years amount to only $7,620.40, "which at the high rate of 6 per cent would provide them with an income of $457.22." Either the interest on these savings will have been effectively supplementing the family income long before the period is up, or else this saving, if allowed to accumulate at the assumed rate, will at the end of the period amount to nearly twice the figures given, and at the given rate yield an annual income of about $841. Several other cases of looseness in argument could be pointed out which space does not permit.

In general the book is interesting and has in it much that is not only valuable but strikingly original.

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How to Invest When Prices Are Rising. Scranton: G. Lynn Sumner & Co. 12mo, pp. 141. $1.00.

This volume is composed of the following chapters: Introduction, by Irving Fisher; "Why It Costs You More to Live," by E. W. Kemmerer; "Rising Prices and Investment," by H. G. Brown; "Bonds as an Investment When Prices Are Rising," by W. E. Clark; "Stocks as an Investment When Prices Are Rising," by J. P. Norton; "Bonds with a Stock Bonus," by M. Rollins; Conclusion, by G. Lynn Sumner.

The authors of this book agree that the increased production of gold is the fundamental cause of the rise of prices, and Professor Kemmerer expressly absolves the trusts, the tariff, and the trade unions from the charge that they have been responsible for the upward trend of prices. The authors unite in advising investors to purchase stocks in preference to bonds. Professor Brown dwells on the advantages that accrue to the holders of stock, at the expense of the bondholders, when prices are rising. Professor Clark admits that stocks as a long-time investment are superior to bonds, yet insists that "bonds have important advantages" even in a period of rising prices; and that in time of panic the holder of bonds can reap much profit, by the sale of his high-class securities and the purchase of stocks. Professor Norton sees danger ahead for the savings banks which are compelled by law to invest largely in bonds; as bonds become more and more unprofitable, large quantities of them will be thrown on the market, and the depreciation of their market value will cause the banks' assets to shrink. Among other things Professor Norton suggests a tax on the production of gold. Mr. Rollins emphasizes the desirability of short-time loans, as a means of investment, and to that stubborn investor who has the bond habit he commends "bonds with a stock bonus." In the concluding chapter Mr. G. Lynn Sumner presents the opinions of thirty-two professors of political economy on the subjects discussed in the preceding chapters. With few exceptions these opinions concur with those of the authors.

The publishers of this guide for investors have performed an estimable public service. Nevertheless, considering the hazardous nature of stock-investment, one wonders whether the increased returns to be derived therefrom are sufficiently large to compensate for the greater security enjoyed by the bondholders. It is better to lose part of one's capital through the depreciation of money, than to lose it all in an injudicious investment in stock. If a promiscuous and unintelligent buying of stocks on the part of the investing public were the result of this book the services of its authors would be considerably lessened.

Unerwünschte Folgen der deutschen Sozialpolitik. By LUDWIG BERNHARD. Berlin: Julius Springer, 1912. 8vo, pp. v+116. M. 1.60.

The measures of the German social policy have brought about in the course of time certain undesired consequences sufficiently important to deserve serious attention. Thus, for instance, the interference of the state in economic

life, which manifests itself in the increasing control, regulation, and nationalization of private enterprises, has resulted in such a restriction of private initiative as to impede the German entrepreneur in his activity and to bring him sometimes even into a prejudicial position with regard to his foreign competitor. Then again, the social insurance legislation has aroused a mania for pensions, which reveals itself in the simulation of diseases and in intentional delay of recovery, and which constitutes therefore a certain danger to public morality and national strength. Furthermore, measures to give the workingman a part in the administration of social institutions in order to win him back to the social order have had just the opposite result. They have driven the water upon the mill of the Social Democratic party, enabling it to exploit social institutions for party political purposes. In calling attention to all these undesired consequences of Germany's social institutions, Mr. Bernhard discusses the question whether there are not limits to such social policies and whether Germany has not gone too far in restricting individual initiative for the social interest. This interesting question concerns the American reader also because of the growing socio-political movement observable in this country.

England's Industrial Development. A Historical Survey of Commerce and Industry. By ARTHUR D. INNES. New York: Macmillan, 1912. 8vo, pp. xvi+374. $1.60 net.

Both the size and the style of this book suggest its use as a textbook. It has little else to recommend it for such a purpose. It is badly arranged, following Dr. Cunningham's bad precedent, and, except for mention of a few works in the preface, by way of acknowledgment, contains no hints, even in footnotes, for further reading and study. It is to be hoped that Mr. Innes does not intend his readers to stop with his volume. If he does, he should have written more carefully. The book contains numerous mistakes, some of which are doubtless misprints, both in facts and dates. In its treatment of some phases of the subject, particularly of the agrarian problems, it completely ignores the conclusions of recent research. One wonders whether the author has ever seen the *Economic Journal* or the *Quarterly Journal of Economics* or ever heard the names of Savine, or Gonner, or Gay. He confesses to a knowledge of Professor Unwin, but he does not seem to have read his *Industrial Organization in the Sixteenth and Seventeenth Centuries* (truly a difficult book) to much advantage, and cannot have used his *Guilds and Companies of London*, for there is barely a mention of Livery Company, surely a matter deserving some consideration, in the entire book. The volume as a whole simply emphasizes the fact that it is high time economic history was recognized as a field of learning deserving care and study and not subject to the exploitation of every writer who knows something about history at large and has revealed an aptitude for writing brief textbooks.

Capitalization: A Book on Corporation Finance. By W. H. LYON. Boston: Houghton Mifflin Co., 1912. 8vo, pp. xi+296. $2.00.

The writer of this volume is trebly equipped for the subject, having had experience in the banking end of the buying and selling of corporate securities, as a lawyer working out the financial arrangements of corporations, and as a lecturer in the Amos Tuck School of Administration and Finance, Dartmouth College. As a result we have a book that in small compass combines clearness, conciseness, and adequacy, though probably if fewer examples in illustration were cited and if certain selected instances were set forth in detail even better results would have been achieved.

Particularly good is the chapter on "Financing an Expansion," where proper recognition is given to the power that banking and other underwriting syndicates, as quasi-representatives of the investing public, exert as to the assets and safeguards that shall lie behind an issue of stock or bonds. Where so much is commendable it is to be regretted that Mr. Lyon has put the seal of his approval on stock watering. Rather disappointing too is his treatment of state regulation of security issues, in which he contributes nothing but a statement of the difficulties involved.

Essentially this is an exposition from the entrepreneur point of view of what is and why in corporation finance. Within these chosen limits it is very good.

L'Organisation des forces ouvrières. By G. OLPHE-GALLIARD. Paris: V. Giard et E. Brière, 1911. 8vo, pp. xv+384. Fr. 9.

For one who is interested in obtaining a general survey of the labor movement in some of the leading countries this book will be very valuable. The origin of the labor movement, its historical development, and its present organization in France, England, and the United States are here brought out. Careful attention is paid to the collective bargain. Its character, object, conditions of application, and results are pointed out and critically discussed. The collective bargain, based upon an organization of the employers and of the employees, is in the opinion of the author the only efficient means to remedy the conflicts between labor and capital. Co-operative producers' associations or commercial associations of labor tending to a suppression of the wage system, unions of employers and employees, factory councils, profit-sharing, compulsory arbitration and legal regulation of employment, based upon a paternalistic conception of the relations between labor and capital, or boards of conciliation and arbitration are considered by the author as mere "artificial solutions" of the labor problem. But the collective bargaining presupposes the existence of a social spirit, which causes the solution of the conflict to be sought in order and peace and not in violence and struggle, in mutual respect and not in mutual hatred. In the fostering of this social spirit on the side of the employers as well as on the side of the employees lies, as the author believes, the key for the solution of the labor problem.

Constructive Rural Sociology. By JOHN M. GILLETTE. New York: Sturgis & Walton Co., 1913. 8vo, pp. xiii+301. $1.60.

The author not only presents this work as a text for colleges and normal schools, but hopes that its non-technical treatment will convey valuable suggestions to farmers as well. Conceiving sociology as a study of the well-being of society, and the term "rural" to include all interests not strictly urban in nature, he covers a wide range of rural problems. These may thus relate to the purely technological aspects of farming and marketing, or to such social and institutional questions as would naturally arise in rural communities. A definite program for improvement is usually coupled with his analysis. Recognizing the inevitable trend of population toward the city as a phase of our industrial development, he conceives the real rural problem to be the improvement of the condition of those persons who remain on the farm. The extensive character of the treatment makes it appear somewhat superficial at times. Statements of controverted facts are set forth unguardedly and there appears to be a lack of critical selection in the material employed. However, this admirably clear and compact survey of such a wide range of agricultural problems should afford a convenient introduction for further intensive studies in this field.

The Social Policy of Bismarck. A Critical Study, with a Comparison of German and English Insurance Legislation. By ANNIE ASHLEY. (Vol. III of "Birmingham Studies in Social Economics and Adjacent Fields.") London: Longmans, Green & Co., 1912. 8vo, pp. vii+92. $0.75 net.

For one who is interested in obtaining a brief survey of the origin and substance of German insurance legislation this book will be of considerable value. In it particular attention is paid to the social policy of Bismarck, who may be considered as the real author of the German social insurance system. Bismarck's life and character are admirably delineated with regard to his social views. The German social insurance system is outlined, in its historical development as well as in its present organization. The author completes her study by a comparison of German and English insurance legislation, pointing out and accounting for their chief divergencies.

The book deserves attention for its sound reasoning as well as for its clear and vivid description.

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THE SPIRIT AND SOCIAL SIGNIFICANCE OF SCIENTIFIC MANAGEMENT

In discussing the spirit underlying such a movement as scientific management, there is a danger of getting off into the realms of the unpractical, and of looking so far ahead as to take away from the present-day value of what may be said. That danger has been kept fully in mind in the preparation of this paper; and, therefore, although at times the statements which are here made may seem a little utopian or visionary, it may be asserted that there are establishments in this country today operating under conditions which approximate those described.

Scientific management has nothing to sell. Scientific management is not something which can be bought in a box. It is not something in the nature of a drug that one takes, and feels better. It is not a card index. It is dependent upon no single mechanism. Nor is it a combination of any number of mechanisms. It is not a system of keeping costs, as our friends in the printing industry sometimes think. Nor is it a method of paying wages, as members of the engineering profession have sometimes held.

We wish to try to remove honest doubts. Those of us who know something of the movement feel a call to add constantly to the number of the recruits who believe in the economic soundness of scientific management and in its ultimate and general adoption. But we do not feel that it is necessary that everybody who hears

about it should become a convert to it. There are undoubtedly a great many men and concerns the world over who are better off without scientific management. Therefore our function must be to point out what are its principles and why we believe they must necessarily be effective in increasing production.

In order to have no misunderstanding, let us admit at the start that there is relatively little scientific management anywhere. Even if from 50,000 to 100,000 men are working under its principles, almost 100 per cent of the workers and managers of this country must still be without what is technically known as scientific management. Dean Gay, the head of the Graduate School of Business Administration at Harvard, said several years ago that he estimated it would require two generations for the principles to become at all generally accepted or the methods to be in vogue in any large part of the industrial field. How could it be otherwise? Work has been going on continuously in the metal-working trades for over thirty years, yet there are today relatively few machine-shops organized in such a way as to measure up to the established standards. We have been working for nearly a decade in the printing industry, yet those who know most about what has been accomplished in this field also recognize most distinctly how much farther we shall have to travel before the industry will be affected in any large way. Even if the application of the principles of scientific management is all worked out for a given type of undertaking it is no easy task to introduce these methods into another and similar establishment. As our industries are organized today, not one establishment in ten can have scientific management because not one in ten is willing to live by law. The fact that it is something difficult to attain must be admitted, but that is, of course, no argument against it, because nothing worth having in life comes except by struggle.

This movement fortunately has long since been put on an international basis. Mr. Taylor's works have been translated into French, German, Italian, Dutch, Russian, Lettish, Spanish, and Japanese. There are some establishments in most of these countries in which real progress in scientific management is being made. Better still in most foreign countries one or more prominent citi-

zens—usually of the engineering profession—are advocating the adoption of scientific management as a means toward national progress.

Up to about two years ago there was practically no interest in scientific management. Even in Philadelphia—the home of Frederick W. Taylor, who first formulated and published the fundamental principles on which this science is founded—it was only within strictly technical circles and among his own friends that anything was known of this man, his work, and the great movement he had originated; one which, in the opinion of many of those most competent to judge, will ultimately affect the lives of all men and women. Up to two years ago I do not remember to have seen more than one reference to scientific management in the daily press. It seemed practically impossible to get a hearing for scientific management, except from isolated individuals, who were forced to it on account of the necessities of some particular business or industry in which they happened to be interested.

Since the rate hearing before the Interstate Commerce Commission in Washington, two years ago last November, all this is changed. Mr. Brandeis, in quoting from Mr. Emerson's book on *Efficiency*, the assertion that under scientific management the railroads could save $1,000,000 a day, seemed to afford the average man something definite upon which to speculate. This discussion had doubtless been imminent for some time, and if it had not been precipitated in connection with the work of the railroads, it would have been brought on, sooner or later, in connection with the work of government or some other line of human endeavor. To my mind, it is simply another indication of the passing of what may be called the "craft spirit" in human affairs, and the rise of the scientific spirit, with its broader outlook and its more substantial footing. In the old days of handwork, most of the improvement in the product was directly attributable to progress made by individual workmen. So also in the industrial régime, which some of us think is passing, the improvement in the product is due very largely to progress made within the individual industry.

What I have called the "craft spirit" has sought to accentuate the differences between the chemistry of railroading and the

chemistry of bookmaking, for instance. The scientific spirit, while not ignoring the essential differences in the application of a science to different industries, lays its greatest stress on the essential similarities. A railroad machine-shop, a machine-shop in a navy yard, and a machine-shop connected with an industrial establishment, are all viewed by their owners as radically different rather than as essentially similar: simply because the owners are laying stress on the elements in which their shops *are* different. As a matter of fact, an analysis of the factors which go to make up such establishments will show that they are exact counterparts of one another, over, let us say, 95 per cent of their field. This percentage might easily be higher, and it is rarely lower. Therefore, in the future, I take it, the individual industry will look beyond its own borders for help. Scientific management asks of the paper-maker, the college professor, the government official, and the ironmaster that each drop his craft spirit and take on as much as he can of the scientific spirit. Scientific management asks the same of the railroads. All the railroads' problems cannot be solved by railroad men; at least many of them can be solved better by men not solely engaged on railroad work, or men whose training has been obtained, in part at least, in other than railroad work.

In our colleges we teach our engineering students about the strength of materials, the mechanics of materials, and the economy of materials; but we are only beginning to teach them something as to the strength of men, the mechanics of men, the spirit of men; in a word, the economy of men. It is just beginning to dawn on us that there is a philosophy and an art and a science of human labor, with laws as definite as those of any other science. To this science we have given the name "management," and to distinguish it from something else, which in the industrial world has been called management, we call it "scientific management." That this conception is novel may be inferred from the fact that in the German language there are no equivalents even for "management" and "efficiency," and when it came to translating Mr. Taylor's last book into German the translator was forced to use the English words for "scientific management."

What are the ends to be obtained by management? In answer-

ing this question Mr. Taylor has pointed out in convincing fashion the futility of considering dividends as in any way a gauge, or even as the direct object of management. He gives two supreme ends toward which everything that is good in management must tend: (1) high wages coupled with low labor cost, and (2) maximum prosperity for all. These are the agencies through which our productive power will grow and ultimately reach its maximum. And it is only through heightened production that the dream of the race will be realized.

Fortunately for us, political economy reflects the best opinion of the modern world when it includes among the legitimate objects of production such items as the "benefits one derives from living in a certain place at a certain time; civil and military security; access to places of amusement and instruction"; bodily health; and even more substantive things, such as music or works of art, or the higher concepts of the mathematician or the man of letters. To have this in mind is essential in any study of our subject, because so many considerations enter into management when it is taken scientifically which either do not affect the balance sheet at all, or affect it adversely. We operate our businesses *to make money* largely because the making of money has been considered one of the best gauges by which the output and the efficiency of the management could be measured. *Production* is really what we are trying to get, and the earning—certainly the declaring of dividends —may from any economic standpoint mean absolutely nothing as to the efficiency of the management. Under certain forms of semi-military industrial control, it is possible, for instance, to get human beings to work twelve hours a day and seven days a week, at a killing pace and for a very low wage. Even this scheme does not always result in dividends, but even if it did we can all be profoundly thankful that it must be considered uneconomic in America today.

What we want in any industrial or other establishment, if we are to reach the highest point in productivity, is to have every individual use his or her highest powers to the best advantage. This is the final goal of scientific management. It is the goal both for the individual and for society. If you can picture a society in

which every unit is using his or her highest faculties to the best advantage, you will see that it approximates the millennium.

The moment you adopt this as a standard, however, you must frame your organization so that every employee from the humblest to the highest is given a chance to exercise his highest powers and to exercise them to the best advantage. He must not only not be hindered but he must be helped, and helped to the extent of having pointed out and developed faculties and powers of which he may have been unaware. Under scientific management we think we are learning how to do this. Alfred Marshall has called attention to the fact that perhaps half the brains of the world are in the so-called working classes and that "of this a great part is fruitless for want of opportunity." Under the new methods of scientific management this great storehouse of wealth will be tapped, not we hope for the benefit of the few, but for the benefit of all.

To define scientific management is no easy task. Hugo Diemer, professor of industrial engineering at Pennsylvania State College, says, in a recent book, that Mr. Taylor

> considers a manufacturing establishment just as one would an intricate machine. He analyzes each process into its ultimate simple elements and compares each of these simplest steps or processes with an ideal or perfect condition. He then makes all due allowances for rational and practical conditions and establishes an attainable commercial standard for every step. The next process is that of attaining, continuously, the standard, involving both quality and the interlocking, or assembling, of all of these primal elements into a well-arranged, well-built, smooth-running machine.

Mr. Taylor says that the philosophy of scientific management is embraced under these four principles:

> First: The development of a science in place of "rule of thumb" for each *element* of the work.
>
> Second: The scientific selection and training of the workman.
>
> Third: The bringing of science and the scientifically trained workman together through the co-operation of the management with the man.
>
> Fourth: An almost equal division of the work and the responsibility between the management and the workmen, the management taking over all work for which they are better fitted than the workmen, while in the past almost all of the work, and the greater part of the responsibility, were thrown upon the workmen.

Quite informally, scientific management may be thus defined:

a) It is a definite working policy applicable wherever human effort is put forth.

b) It is the introduction of the laboratory method in everyday affairs.

c) It is the acceptance of the dictates of science instead of those of personal opinion and tradition.

d) It is the establishment of the fact that not to know is no crime—that the crime is not being willing to find out.

e) It is a type of co-operation more intensive than the world has yet seen.

f) It is filling in—not bridging—the chasm between capital and labor.

g) It is making our industrial life square up with the best we know in our personal and social relations.

h) It involves a very radical change in the attitude both of the men and the management to the work on which they are mutually engaged.

My task is not to deal with the technique which grows out of the adoption of Mr. Taylor's four principles. It is rather to reflect the spirit in which they must be applied if they are to be true agents of efficiency, and then to show how when they are so applied they enhance the joy of living.

Practically everything that is done in developing scientific management in an establishment has for its object the setting of tasks. We have tried to avoid the use of this short and, to some, rather disagreeable sounding word, but the language does not seem to afford one that better describes what we have in mind. A task with us is simply a fair day's work and—let us not forget—one which can be repeated day in and day out, year in and year out, if necessary, without detriment to the physical, mental, and moral well-being of the person performing it. Unless you are able to set tasks, you cannot have scientific management. Now, to set a task requires more than a stop-watch. Before the stop-watch, or before any of the other mechanisms that are found useful in management, comes the building-up of a spirit of mutual confidence and helpfulness. To make my meaning entirely clear, let

me say that we never use a stop-watch on an employee except practically at his own request. I do not mean that we wait until the request is framed in so many words, because a good many people on whom we have used a stop-watch with a mutually satisfactory result cannot speak our language. Some of those who can speak our language might *think* the request, without the ability to formulate it in words. Anyone who arbitrarily uses a stop-watch, or any other such mechanism, for getting more work out of an employee, without having in mind that employee's greatest prosperity, and without doing it as much, or more, for the benefit of the employee than for anyone else, is a menace to society.

This place which the stop-watch has in scientific management simply illustrates our attitude toward the workers. We are all workers from the president of the company to the office-boy and the porter, and each one has to be individualized. You cannot have scientific management in one part of an establishment and not have it practically throughout. You cannot have one group of employees impose it on another group. You cannot have "fake" co-operation. To have the president of the company hold that his personal opinions and whims are to be taken into consideration, but that the vice-president and all the rest are to live by law, is to have an unworkable proposition. We do not ask anybody to accept our personal opinions, nor will we accept those of others. Facts must determine each question as it comes up. If you haven't the facts you must get them, whether they can be secured in five minutes at no expense, or whether it takes thirty years and the expenditure of hundreds of thousands of dollars, as it did in the case of the development of the slide rules for machine tools.

I have said that scientific management means the individualizing of the workers, and herein lies the heart of its social significance. As long as William Smith and Molly Brown are simply two units in a group of two hundred, one thousand, or five thousand employees, the individuality and individual welfare of these two workers is of very little moment. When, however, you set out to get from an industrial establishment its maximum production, made up as it is of the maximum production of all the William Smiths and all the Molly Browns, you will never get it unless you study each of them individually.

You must see in the first place that the rewards for high efficiency are not only full, fair, and accurate, but that they follow satisfactory completion of the work in the shortest possible time. It is not enough, as is the case in the profit-sharing plan, to have it come as a bonus at Christmas, twelve months after some of the work was done. Nor does it make for efficiency that Smith gets his whether he had any share in bringing about the result or not. The average job under scientific management takes about three hours to perform. The worker must receive his or her reward for a job efficiently performed within twenty-four hours of its completion. To bring this about requires a type of co-operation and a degree of co-operation that will come only as the result of the most farsighted and kindly interrelation between the different individuals who make up an industrial or other establishment. It is not the kind of co-operation that you get up in a selling force by bringing the men together in a room and filling them full of enthusiasm for increased sales. It can be brought about only after years of effort and following constantly a policy of something more than the square deal. Any effort to introduce scientific management in the absence of a genuine and painstaking co-operative spirit is utterly impracticable.

Scientific management must be relentless in seeing that each worker receives his or her reward and only for work efficiently performed. We must regulate the benefits according to the services rendered. Any system that tries to average up rewards is doomed to failure. At the same time it is the constant aim of scientific management to organize itself so as to be able to help, in the broadest fashion, those who are temporarily or permanently below the average, to be as largely productive as such farsighted assistance can make them. Yet this is not welfare work we are discussing. It is something so immeasurably superior to the best grades of welfare work that the two cannot be compared. It is something that is entirely self-supporting because it really means something to the workers.

Again, scientific management demands the entire elimination of the military system of control. The military system, of course, we inherit from the days when everybody had to "fight for it." It was designed in order to mass one's greatest strength at a given

place at a given moment of time. An industrial establishment is not operated for this purpose. What we are trying to bring about in industrial establishments is a steady, even flow of work, done under the minimum of tension and with the least possible discomfort and disorder. We find that to do work under these conditions the military system has no place and that we must functionalize. Under the functional system a man can take orders from more than one person; in fact, most of our work people take direct orders from eight different people, known as functional foremen. Let me show this by describing that functional foreman whose work illustrates my part of this subject perhaps better than any other. We call him the shop disciplinarian. Under scientific management only one man in the establishment has the authority to discipline employees and he disciplines anyone who may need it. The beautiful part of this is that after you have your disciplinarian appointed and the shop reasonably well organized on scientific management lines, the disciplinarian rarely has anything to do. The reason why he has nothing to do is that after he has been at work for any length of time it gets to be "good form" in the shop not to give him any work. The workman who is uncivil to his mates loses standing. As long as the military system is in control, the man who has the rank usually administers more or less discipline to everybody underneath him and this develops resentment and reaction. Altercations are frequent. With the military system it is usually the under dog that gets discharged. After the disciplinarian is installed and you issue instructions that when two workers get at loggerheads they are to send for him, it seems to take all the fun out of it. The disciplinarian is picked because he has good judgment and knows how to smooth out difficulties. In other words, he is a specialist.

Functional management leads ultimately to the democratization of our industries. Whether it be in the city or in the state or in the nation, we are finding out that democracy will not work with a few men controlling all operations, no matter how competent, farsighted, and amiable the few may be. Democracy in government means not only the rule of the people but the participation by the people in their government in the largest possible fashion.

In an industrial establishment the doing-away with the military control, and especially the functionalizing, makes every worker share, according to his ability, in the conduct of affairs. In other words, after scientific management has been introduced, the shop is run by the collective intelligence of the many, rather than under the "I say so" of those who, in the language of the day, own the business. Under this scheme the employees become more attached to a business. There are infrequent changes in the personnel and this aids very materially in wise administration.

After you have individualized your employees you are not entirely without interest in what they do when they are not at work. It is the experience of every man who has set tasks and watched any considerable number of workers perform them, that sometimes they fail to earn their reward, which we call the bonus, and yet no reason for this can be found in the shop. Nine times out of ten you will find a sick child or wife at home, the worker in debt, or some other purely personal reason for working below par. Working without the closest spirit of confidence and co-operation, no opportunity is afforded for finding out these sources of inefficiency. On the other hand, it is only after your organization is working under the conditions of an industrial family that it becomes almost impossible not to know that this man or woman is in debt, that another has sickness at home, or has some other cause of anxiety.

Then you will find that there are a hundred and one kinds of questions which you ask employees before hiring them that you never thought of asking before. There are under this kind of relationship a hundred and one things that you have in your mind as possibly affecting your employees that you never gave thought to before. I can take you to cotton mills in New England where they hardly stop the machinery when a man loses his arm and where the level of morality among employees of both sexes is at a very low ebb. Compare this with a scientifically managed plant, where it is almost as hard to hide sickness and distress as it would be in your own families. It is the duty of an industrial family—not necessarily of the one individual whom we call the employer—to see to it that the level of morality is high and always going higher. This makes

for individual efficiency and prosperity; and we are finding out more clearly every day that group prosperity is not possible, without individual prosperity. High wages there must be, but high wages must be accompanied by efficiency or they will avail but little.

Any establishment in which scientific management is being developed must necessarily be an educational institution. If you individualize your employees you must let them rise as far as their physique and mentality will permit. You cannot have annoyed and disaffected employees. We have only two classes of people. There are always those who have reached the limit of their capacity and know it and want to be let alone, fully realizing that they are better off working for you than they could possibly be working for anyone else. The only other group are those who are growing, those who have not yet reached their full capacity. These you must help in every possible way, and if their line of best advancement does not lie within your establishment you must make it one of your most important duties to see to it that they get this chance for advancement somewhere else. Here is one of my principal criticisms of railroad management. The railroads are especially likely to have a third class of people, who have never had what they consider a chance—men who have advanced so far and then have stood still for no reason upon which you can lay your finger. These men feel, whether rightly or wrongly, that they have within them the possibilities of further growth. These men are invariably "against the government," and are a source of weakness in any organization. Something is wrong here. Either they were badly selected or they have been badly trained, or some time since they should have been given a chance elsewhere. Perhaps it is a little of all three.

This paper would be incomplete did I not refer to the attitude of scientific management toward criticism. My eyes were opened to the novelty of our position toward constructive criticism by the way in which my report on *Academic and Industrial Efficiency* was received by the colleges, and more recently by the attitude taken by the railroad world toward scientific management. We feel that everybody in the establishment, from the office-boy up—and those out of the establishment for that matter—should be given the

widest opportunity for making suggestions and criticisms. Suggestions that are in any way adopted should be fairly compensated for. The truth is that after scientific management has made any material progress in a plant it becomes increasingly difficult for those not making a special study of any given matter to make suggestions in regard to it. This does not change our attitude toward the desirability of constructive criticism. We are on our knees begging for it, and the man or the woman who takes the trouble to criticize us most freely and frequently is our best friend. It is a far cry from this attitude toward that which obtains in many establishments—I suppose in the majority of establishments—where an employee is liable to be discharged for constantly making suggestions. We do not see in constructive criticism any of the elements of fault-finding. Surely until we are willing to face the truth in our industries, let it come from where it will, we cannot even begin to allege that we are being scientifically managed.

I have said that scientific management is not something that can be bought in a box. Nor can you lay it on like a suit of clothes. You do not "get it" as we are told one gets certain varieties of religious experience. The truth of the matter is that scientific management *gets you*. If one could casually introduce scientific management in an establishment, much as one would introduce a system of bookkeeping, it would hardly warrant our giving it very much attention. Scientific management can be developed in any group of people only through a course of individual and collective discipline that must last over a long period of years.

Finally, let me say that there is nothing to prevent scientific management from becoming a nuisance—even a menace—in an industrial community. But the same criticism can be made of democracy—even of Christianity—if either is allowed to drift from a genuine purpose or into the hands of charlatans. In my opinion, we shall never fully realize either the visions of Christianity or the dreams of democracy until the principles of scientific management have permeated every nook and cranny of the working world.

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THE TRAINING OF INDUSTRIAL ENGINEERS

Men and women are strangely hard to move or lead from their accustomed way. A sense of the difficulty of such change is perhaps the first feeling of most men who work in the science of management. Little by little, as the engineer goes forward, however, he begins to see that the possession of certain powers enables him to conquer not only hesitant men and recalcitrant machines, but baffling problems which involve both men and machines. And the powers which enable him to do these things are science and common-sense. Those are the two needs which the industrial engineer himself ardently desires to gain to a greater and greater degree. Those are the two needs which I present here as the basis of the training of men who intend to make the science of management their vocation.

I assume that no course in the science of management would be begun before the end of the Sophomore year in college. The man who reaches the Junior year of college or technical school must have had some training in science and mathematics or he would not be eligible to enter the scientific management course. He must have acquired some common-sense and scientific attitude on his way, and the knowledge of science and common-sense so gained should be sufficient to enable him to recognize that in electing scientific management he is deliberately electing to follow a long and arduous road. The problem before us, then, when we discuss the work of men electing industrial engineering courses, is not one of supplying common-sense to men who have none, but rather of taking men with some common-sense and some knowledge of science and raising what they have to the highest possible power.

How, then, can the industrial engineer become a scientist, attain the scientific attitude of mind? More difficult still, how can he obtain common-sense?

By welding the scientific work of the classroom with the shop-

work of the factory; by making the laboratory hours, hours that are spent with wage-earners striving for their daily wage, instead of with fellow-students who are studying rather than earning; by making the classroom hours full of the splendid life, spirit, and movement of American industry. Laboratory and classroom hours alike must be filled with reality rather than with pure theory or with theory quite unrelated to the practical world.

The ignorance of the American undergraduate as regards industry seems to me appalling. The matter of his courses, the content of his texts seem to the undergraduate to belong to a world quite separate from the busy, stirring factory world outside the academic walls. He must then, first of all, get in touch with the shop. And I insist that he can do that nowhere save in actual operating shops among men who are working for their daily wage. No shop practice in the school will produce a like result. Shop-sense is one of the most valuable possessions of the industrial engineer. That sense comes only through actual shop practice. Once possessed it means that the man has thereafter the freedom of the shop.

To attain the desirable ends of knowledge of science and possession of common-sense I propose that any course in the science of management shall consist of classroom work as outlined below and of laboratory work carried on in actual operating shops. That means that manufacturers who are broad-minded enough to be willing to assist the college, and instructors broad-minded enough to recognize the limitations of industry must co-operate in giving the laboratory instruction in shop practice to the students. I believe both groups of men exist and I feel that through their combined efforts the student should have an opportunity to spend the summers of his Sophomore and Junior years in actual shop practice, while three afternoons a week during the scholastic year should see him working in the shop.

What underlying thought must be before the men who make the courses?

Again to a definite question we can give a definite reply. The industrial engineer is dealing in all cases with both *men* and *machines*. He must study "man" in his relation to his industrial environ-

ment—not any single class of men, but all the men engaged in industry. He must study "machines," not alone in their relation to their product, but also in relation to the human beings who operate them. It is his task to bring the best that modern science has to the aid and well-being of man.

It is in the development of his pupil's studies of men that the wise teacher of scientific management will work most steadfastly in correlating the allied courses, mentioned later, in psychology and physiology, in economics and sociology, with the courses in the science of management, and with the work of living men and whirring machines. What percentage of flat failures occur because men have only "one side to their head," because they are quite unable to see the relation of many interweaving threads in a given problem, it is hard to tell. But I believe it is no small number. The industrial engineer must recognize the presence of many factors in a problem. He must solve equations of not only two unknown quantities, but of a dozen unknown quantities, so to speak. And the correlation of his courses in class with each other and with life will do much in the way of enabling him to do so.

It remains briefly to sketch the content of the direct courses on this subject and to state their desired end. To do this I use again the question form.

When should the work begin, and how much of the student's time should it occupy?

Direct work in scientific management should begin either at the end of two years or of four years in college. The direct and allied special classroom courses should occupy one full year of collegiate training, divided between two years' work, making a half-year's work in scientific management during both the Junior and Senior years. The shopwork should occupy two summer vacations and three afternoons a week during each of the two years.

What courses should be offered?

A dominant course in the science of management running through two years, allied with courses in economics, sociology, psychology, physiology, hygiene and sanitation, theory and practice of accounting. All these should be in addition to the student's more direct work in science, mathematics, English, and foreign

languages, which occupy the time of three out of the four collegiate years—if the courses are made undergraduate ones.

What should be the content of the scientific management courses given during the four half-years that comprise the Junior and Senior years of most colleges and technical schools?

The first half-year should be devoted to a general view of four picked industries—in order that the student may see industry more or less as a whole—and to the study of the principles of scientific management. The laboratory work for this course should consist of the broad outlined study of four plants from the time of the receipt of the first inquiry from the prospective customer to the final entry of the payment for the bill and the calculation of the cost. The classroom work for this course should be devoted to a thorough grounding in the basic principles of organization, and to study of the principles of scientific management.

It is most essential that the student should obtain at the very start a clear realization of the difference between system and science. It is most essential also that he should come to understand that, while certain problems solved for one industry may be solved for all industry, such general solutions cannot be presumed upon. He should know that every new business will contain new problems, which must be solved by the use of all the knowledge of the past plus all the imaginative genius he can hope to possess. That is to say, the student must learn that a mechanism used successfully in one place cannot be bodily transported to another with hope of instant success. By the end of the first half-year each individual taking the course should have come to realize that he is studying the principles of a science which are applicable to every case, not memorizing a set of rules or inheriting a stock of recipes. The study of four actual operating plants will aid him greatly in this realization.

The second half-year should be devoted in the classroom to a detailed study of the planning-room and the processes involved in getting work into the shop, of stores, routing, specifications, etc.—planning in general, in a word. The laboratory work should consist of actual planning-room experience in the shop.

It is entirely true that there is a question as to whether planning-

room experience should follow or precede shop training. It may, therefore, be a question whether planning should be put in this course. It is my own belief that the student will master his shop theory better the third half-year from the fact that he has discovered the basic reasons of the work in the planning-room. It should be noted, moreover, in this connection that I have assumed that the student has had a summer's experience in actual shop practice as a prerequisite of the course, and that he has had a half year of general preliminary study.

The third half-year should be devoted to a detailed study of work in the shop (especially of the teaching work of the functional foreman), of inspection, and of task work. All of this except the study of task work should be done in actual plants. The task work should be done on fellow-students in the shops of the school. No untrained man should ever be put on actual task-setting.

The third half-year offers a great opportunity to impress upon the student the importance of the teaching function of his work. The whole theory of functional foremanship is a theory of education and a great part of the time of an industrial engineer must be spent in teaching the men with whom he is working. Adequate powers of expression are by no means common among our recent graduates. The teacher of scientific management can never forget that the work of his pupils must show in the life-work of the men with whom they are dealing. The bridge-builder leaves a physical monument largely untouched by the later thought of men. The industrial builder must educate in such a way that his work will go progressively forward in the minds of men. That is true education, and education is true only when it obtains adequate expression.

The fourth half-year should be devoted to studies in bringing all the best that science offers to the aid of industry—to work in costs, to work in the determining of policies by studies of sales, purchasing, and the like, and to the co-ordination of the work of the three half-years already outlined.

The course of the fourth half-year should be broad enough to give the student some concept that great movements of trade exist and that they are factors which he must meet and use. The world is fairly well provided with men who can look after a few details.

It is very poorly provided with men who can care for great constructive work. One of the greatest industrial leaders of our time said to me the other day: "The greater the affairs of a corporation, the smaller the number of men who can deal with them. It seems to be a true inverse proportion. There are ten men who can think in a hundred thousand dollars, to one who can think in a million, and ten who can think in a million to one who can think in ten millions."

I should hardly expect any course to give an undergraduate a great grasp of comprehensive plans. There is, however, no reason why we should hitch our wagon to the lowest of the stars when we can find higher ones within our reach.

In the foregoing résumé of a course in the science of management I have made no reference to many subjects I should have been glad to consider, to reports and theses, to methods and policies. Considerations of brevity forbade. I must turn again to my catechism and end with three brief questions and three brief answers.

What should the allied courses teach?

The relation of man to industry and to his general environment.

What should the college courses in English teach?

The power of expression.

What should the work in scientific management teach?

That scientific management is a change of mental attitude (mental attitude, now, as always, the most powerful force among men) which makes employer and employee pull together instead of apart, which brings all that is best in science to the aid of every man in industry, and which, by its substitution of exact knowledge for the chaos of guess work and ignorance, makes progressively for justice and for the coming of the "new industrial day."

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SECURITY PRICES AND INTEREST RATES IN 1910–12

In May, 1910, July, 1910, and April, 1911, the *Journal of Political Economy* published rather elaborate tables of security prices and interest rates for each month of the twenty years 1890–1909. The series included index numbers of common stocks, preferred stocks, and bonds, together with bond yields, discount rates on commercial paper, and call-loan rates. The numerous uses found for these figures make it desirable to bring them down to date.

Concerning the materials and methods employed in compiling the tables, full explanations were given in the articles mentioned above, and need not here be repeated. Volume and page references will suffice to show upon what tables for 1890–1909 the present extensions should be spliced. At the end of the article a few of the most important data will be given for the full period of twenty-three years now covered by the tables.

I. THE INDEX NUMBER OF COMMON STOCKS

The depression in trade and industry which followed the panic of 1907 was extraordinarily severe. But recovery began with unusual promptness. Within a year of the panic finance recuperated, and in the second half of 1909 manufacturing, wholesale trade, and retail trade showed marked gains. Meanwhile in England and Germany the crisis of 1907 had not degenerated into panic, the depression of 1908 had been less severe, and the recovery had begun later in 1909 and proceeded at a less rapid pace. Still the general course of the business cycles on the two sides of the Atlantic had been similar. But a striking difference presently appeared. The European revival suffered no serious check and developed into full-blown prosperity in 1910–12. On the contrary, the American revival proved as brief as it was prompt. Depression returned in 1910 and lasted through 1911. Finally, in 1912, America closed its second period of liquidation after the panic and entered upon its second period of revival. Despite the uncertainties of a presidential year, a long series of labor troubles, a continuation of the trust prosecutions which many had blamed

TABLE I

AVERAGE RELATIVE PRICES OF COMMON STOCKS IN FORTY TRANSPORTATION COMPANIES BY YEARS, QUARTERS, AND MONTHS 1910–12
AVERAGE ACTUAL PRICES IN 1890–99 = 100

(Continues tables on pp. 349 to 367, *Journal of Political Economy*, XVIII)

	BY YEARS			
	Low	High	Spread	Average
1909	266	288	22	277
1910	243	265	22	254
1911	241	256	15	248
1912	236	249	13	243

	BY QUARTERS							
	First Quarter		Second Quarter		Third Quarter		Fourth Quarter	
	Low	High	Low	High	Low	High	Low	High
1910	261	287	246	270	225	244	244	260
1911	245	261	250	263	237	256	235	248
1912	231	245	240	253	239	251	234	248

TABLE I—*Continued*

	By Months							
	Relative Prices of Stocks				Millions of Shares Sold	Average Call-loan Rates Per cent	Net Imports (+) or Exports (−) of Gold in Millions of Dollars	Current Events Affecting the Stock Market
	Low	High	Spread	Turning-points				
1910 January....	262	298	36		24.5	4.72	− 4.0	Taft's message recommending increase in powers of Interstate Commerce Commission, etc.; Hocking Coal & Iron Co. in hands of receivers; fall of cotton and grain prices; slackening activity in steel trade
February...	252	275	23	Min.	16.0	2.78	+ .1	Signs of declining activity in several industries; failure of Fisk & Robinson
March.....	268	289	21	Max.	15.0	2.88	+ 2.6	N.Y. Central dividend rate increased; numerous strikes and wage advances
April.....	254	277	23		14.1	3.28	−34.2	Bad crop reports; gold exports, dear money, intimations of further prosecutions of corporations
May.....	252	272	20		11.9	3.63	+ 2.4.	Large foreign sales of railway securities; crop prospects better
June.....	233	265	32		16.3	2.77	+ 3.0	Injunction against advance of railway rates; Interstate Commerce Commission reduces rates west of the Missouri
July.....	219	246	27	Min.	14.3	2.41	+ 9.5	Injury to spring wheat; Interstate Commerce Commission secured postponement of advances in freight rates; further restriction of trade; Farquhar-Pearson securities taken over by Kühn, Loeb & Co.
August.....	228	250	22		10.4	1.55	+ 9.7	Gains by "Insurgents" in state conventions; further restriction of trade
September..	232	245	13		7.7	2.00	+ 1.4	Minnesota rate decision favorable to railways; Democrats carried Maine; revival of demand for bonds

1910 October....	247	266	19	Max.	13.5	3.13	+ 3.5	Crops better than expected; Democratic success at elections forecasted; Bank of England raised rate to 5 per cent
November..	246	263	17		10.7	3.23	+ 2.9	Democrats captured House of Representatives; federal suit against "Sugar Trust"; pessimistic trade forecasts
December..	243	255	12	Min.	9.8	3.38	+ 3.6	Encouragement received from Taft's message to Congress and decision in Anthracite Coal cases; further federal suits against corporations; additional increases of wages by railways; continued restrictions of trade
1911 January....	246	262	16		10.4	3.18	+ 8.6	Carnegie Trust Co. closed; restriction of production in leather and cotton trades; large loan flotations by New York City and by railways; prospects of steel trade better; net earnings of railways larger; money market easy
February...	250	267	17	Max.	10.2	2.28	+ 5.4	Decline in commodity prices; several new railway loans; further improvement in steel trade; plan for double tracking Union and Southern Pacific announced; market broke on 24th after announcement that Interstate Commerce Commission refused to permit advance of railway freight rates
March.....	251	265	14		6.8	2.28	+ 3.6	N.Y. Central Railroad reduced dividend; railway net earnings lower; troops sent to Mexican border; new orders in steel trade smaller; copper stocks larger; money market dull
April.....	249	260	11	Min.	5.6	2.30	+ 3.0	Congress met in extra session; further signs of reaction in general business; increasing demand for bonds; rates for money very low
May.....	249	263	14		11.1	2.31	− 1.8	Supreme Court decision in Standard Oil case followed by temporary revival of speculation; general cut in steel prices; House of Representatives began investigation of U.S. Steel Corporation

TABLE I—*Continued*

	By Months							
	Relative Prices of Stocks				Millions of Shares Sold	Average Call-loan Rates Per cent	Net Imports (+) or Exports (−) of Gold in Millions of Dollars	Current Events Affecting the Stock Market
	Low	High	Spread	Turning-points				
1911 June.....	259	271	12	Max.	10.5	2.40	+ 1.7	Sale of Panama Canal bonds highly successful; government defeated in suit to separate Southern Pacific from Union Pacific, but won suit against "Powder Trust" and began several new prosecutions under Sherman law; crops injured by dry weather
July.....	255	265	10		5.5	2.36	+ .4	Further damage to grain crops, and wild speculation for advance of prices; Interstate Commerce Commission's decision regarding Pacific Coast rates deemed unfavorable to railways; new trust prosecutions; anxiety over Moroccan crisis
August.....	232	262	30		15.0	2.31	+ 3.6	Supporting of prices apparently ceased on Stock Exchange; liquidation on European account; threatened labor difficulties for railways; prices of steel products weaker; new trust prosecutions
September..	224	242	18	Min.	17.4	2.28	+ 2.4	Speeches by Taft and Wickersham threaten extensive prosecutions of trusts; uneasiness in European markets; loans by New York to Paris and Berlin; Tripolitan war; price-cutting in steel; western railway strikes
October....	232	246	14		10.9	2.33	+ .1	Federal suit against U.S. Steel Corporation; Wickersham approved plan of "Tobacco Trust" for reorganization; steel earnings larger; revolution in China; monetary tension in Europe relaxed; New York bought $13,000,000 Prussian treasury notes; money a drug

1911	November..	238	253	15		14.9	2.72	−10.5	Circuit Court approved plan for disintegration of "Tobacco Trust"; Commerce Court enjoined order of Interstate Commerce Commission in Pacific Coast rate cases; increased railway orders for steel products; financial conditions abroad easier; over $10,000,000 gold sent to Canada; New York reserves below 25 per cent
	December..	240	252	12	Max.	9.1	4.03	+ 3.7	Hadley Commission's report on railway securities well received; increasing orders for iron and steel; further trust prosecutions; receivers appointed for Wabash; rates for money somewhat firmer
1912	January....	230	244	14		10.9	2.43	+ 3.2	Railway earnings smaller; C.M. & St.P. reduced dividend; wage increase demanded by engineers; Lawrence strike; industry more active; Equitable fire; monetary ease; loans made to Europe
	February...	230	241	11	Min.	7.1	2.28	− 7.7	Roosevelt announced that he would accept nomination; further improvement in steel, copper, and textile trades; continued ease in money; heavy gold exports to Paris
	March.....	234	250	16		14.6	2.42	− 3.1	Bull movement, supported by growing activity in trade; earnings larger; anthracite coal strike called; wage increase in textile mills; deficit in N.Y. bank reserves
	April.....	243	257	14	Max.	16.0	3.00	+ 2.1	Titanic disaster; Roosevelt gaining; unfavorable crop reports; labor controversies less threatening; floods on the Mississippi; suit against Harvester Co.; increase in bank reserves; Bull clique supporting market
	May.....	240	254	14		13.7	2.75	− 1.1	Further gains by Roosevelt; coal miners returned to work; crop prospects poor; railway firemen demanded higher pay; metal trades active, but U.S. Steel earnings small
	June.....	237	247	10		7.2	2.75	− 1.6	Taft nominated; steel trade active; crop conditions improved; "Money-Trust" inquiry begun

TABLE I—*Continued*

	By Months							
	Relative Prices of Stocks				Millions of Shares Sold	Average Call-loan Rate Per cent	Net Imports (+) or Exports (−) of Gold in Millions of Dollars	Current Events Affecting the Stock Market
	Low	High	Spread	Turning-points				
1912 July.....	235	245	10	Min.	7.2	2.88	.....	Wilson nominated; crop prospects excellent, except cotton; metal trades very active; money dearer; deficit in N.Y. bank reserves
August.....	240	253	13		9.0	2.84	.....	Crop prospects excellent; Roosevelt nominated; all tariff bills failed; continued activity of trade; money less easy
September..	242	254	12	Max.	10.1	2.63	.....	Large crops assured; trade active; increased railway earnings; brisk demand for money
October....	238	254	16		14.2	5.33	.....	Balkan War; acute tension in European markets; foreign liquidation in American securities
November..	237	248	11		8.7	6.38	.....	Democrats captured presidency and Congress; Europe repurchasing American securities; money rates stiffened
December..	226	242	16	Min.	12.6	6.50	.....	Supreme Court dissolved Union Pacific and Southern Pacific merger; trade active; Balkan peace conference

for blighting the revival of 1909, and the outbreak of war in Europe, —despite all these difficulties, the volume of business expanded month after month. Not until the very close of the year, when the prospect of tariff revision began to disturb many minds, was the pace of advance moderated, and even then the tone of business in most quarters remained fairly confident.

The stock market reflected these successive changes in business conditions much more faithfully in 1907–11 than in 1912. The lowest point touched by the index number during the panic was 159.0 in November, 1907.[1] In 1908 the lowest point was 159.5 in February. Even while industrial stagnation was at its worst, stock prices rose. By July, 1908 the index number was above 200; by December, above 250. When general business improved in 1909 a further rise occurred in stocks. By June stock prices were actually higher than ever before in the whole period since 1890, and the rise continued until the index number stood at 295.5 in December—16.0 points above the previous high record of January, 1906.

In this upward rush of quotations the stock market had discounted the re-establishment of prosperity while general business was still in the stage of revival. Consequently, when the revival was blighted in 1910 and business relapsed into depression, stock prices suffered a grievous fall. By July, 1910, the index number stood at 232.5—a loss of 63.0 points in seven months. During the rest of 1910 and all of 1911 the state of mild depression obstructed every campaign for the rise. The highest point touched in this period was 265.0 in June, 1911, when the government was defeated in its first suit to separate the Union Pacific and Southern Pacific railways. But efforts to maintain that level of prices were unavailing. By September, 1911, the index number was back at 233.0, and after a slight rise at the end of the year it relapsed again to 235.5 in February, 1912.

In 1909, the stock market had run far in advance of the revival

[1] This and the following figures are means of the highest and lowest relative prices as shown by the tables. Readers critically interested in these tables may be reminded that the numerous small discrepancies between figures for months, quarters, and years arise from imperfections in the original data—not from inaccurate computations. See *Journal of Political Economy*, XVIII, 348, note 2.

of general business; in 1912 it lagged behind. While manufacturers were booking orders far ahead, while wholesale and retail merchants were increasing their stocks and turning over their goods rapidly, while basic commodity prices were rising, and while bonuses were being promised for prompt delivery, the stock market rose only 14.5 points from February to April, then kept a fairly even course until after the presidential election, and finally receded

TABLE II

AVERAGE RELATIVE PRICES OF FORTY COMMON STOCKS, CLASSIFIED ACCORDING TO THEIR AVERAGE ACTUAL PRICES IN 1890–99

(Continues table on p. 376, *Journal of Political Economy*, XVIII)

	17 Stocks Selling at Less than $25 in 1890–99	13 Stocks Selling at $25 to $99 in 1890–99	10 Stocks Selling at More than $100 in 1890–99
1909	332	271	193
1910	301	260	166
1911	296	253	160
1912	278	257	165

TABLE III

AVERAGE RELATIVE PRICES OF SEVEN GROUPS OF TRANSPORTATION STOCKS IN 1909–12

(Continues table on p. 379, *Journal of Political Economy*, XVIII)

	5 North Atlantic Railways	4 Coal-Carrying Railways	6 Southern Railways	8 Middle-Western Railways	7 North-western Railways	5 Pacific Railways	5 Express Steamship and Telegraph Companies
1909	159	340	358	201	296	445	177
1910	141	331	349	197	243	406	148
1911	140	328	345	178	244	405	137
1912	138	364	347	173	210	397	130

to 234.0 in December. For the year as a whole, prices averaged less than in 1911, as in 1911 they had averaged less than in 1910, and in 1910 less than in 1909. Investors and speculators may have feared lest this second revival should suffer the fate of the first, or doubted whether as matters stood, an increase of traffic would bring a corresponding increase of profits to the railways. Certainly the sales of American securities by Europeans after the Balkan War broke out, the fear of tariff changes when the Demo-

crats captured the Senate as well as the House and the presidency, and the final success of the government in its suit to separate the Union and Southern Pacific railways, were powerful repressive influences in the stock market.

Tables II and III show that the recession of stock prices since 1909 has occurred among high-grade and low-grade stocks, and among the stocks of railways in every section of the country except the anthracite coal-mining district. Not all these groups however show a fall from 1911 to 1912. On the contrary, the medium and high-grade stocks which appeal primarily to the investor scored a slight gain in 1912, while the low-grade stocks suffered a considerable fall. Among the geographical groups, the anthracite coal stocks made a notable advance in 1912, and the southern railways a slight advance.

II. THE INDEX NUMBER OF PREFERRED STOCKS

Preferred stocks have shared with common stocks in the general decline since 1909; but their fall has been more moderate. On the basis of yearly averages the drop from 1909 to 1912 is 46 points in one case, against 65 points in the other; on the basis of monthly figures it is 64.3 and 94.5 points respectively. But while preferred stocks have been much steadier in price than common stocks in 1910–1912, they have undergone changes much more violent than those shown by commodity index numbers.

TABLE IV

AVERAGE RELATIVE PRICES OF PREFERRED AND COMMON STOCKS IN TEN RAILWAYS BY YEARS, QUARTERS, AND MONTHS, 1910–12

AVERAGE ACTUAL PRICES IN 1890–99 = 100

(Continues tables on pp. 515, 516, and 519, *Journal of Political Economy* XVIII)

	BY YEARS							
	Low		High		Spread		Average	
	Preferred	Common	Preferred	Common	Preferred	Common	Preferred	Common
1909	164	267	174	293	10	26	169	280
1910	143	234	153	262	10	28	148	248
1911	134	224	141	242	7	18	138	233
1912	120	208	125	221	5	13	123	215

TABLE IV—*Continued*

	By Quarters							
	1st Quarter		2nd Quarter		3rd Quarter		4th Quarter	
	Low	High	Low	High	Low	High	Low	High
1910 Preferred..	156	167	147	158	132	142	138	146
Common..	257	294	239	271	213	237	226	247
1911 Preferred..	140	146	139	146	132	140	126	134
Common..	231	249	233	248	219	239	214	233
1912 Preferred..	122	127	121	127	120	123	118	123
Common..	204	218	210	225	210	222	207	220

	By Months											
	1910				1911				1912			
	Preferred		Common		Preferred		Common		Preferred		Common	
	Low	High	Low	High	Low	High	Low	High	Low	High	Low	High
Jan.....	160	176	259	309	138	144	229	247	123	128	203	219
Feb.....	151	162	247	279	141	147	233	254	122	120	203	214
March...	157	164	264	293	141	145	232	246	122	128	205	222
April.....	151	162	250	283	138	143	228	241	126	131	217	231
May.....	150	158	248	272	138	146	230	247	120	127	210	225
June.....	140	152	218	257	141	149	240	256	118	124	204	220
July.....	127	142	201	234	140	144	240	249	118	121	205	218
Aug.....	133	143	215	240	132	141	212	243	120	123	211	224
Sept.....	137	142	223	236	124	136	206	226	121	125	214	224
Oct.....	141	150	231	255	128	136	212	233	120	126	210	224
Nov.....	139	147	228	249	128	135	220	238	119	124	211	222
Dec.....	135	140	220	236	121	131	208	227	115	118	200	214

III. INTEREST RATES UPON BOND INVESTMENTS AND SHORT LOANS

Business depression disposes investors to diminish their purchases of speculative securities, and to increase their purchases of gilt-edged bonds. Hence the prices of bonds usually rise and the interest actually yielded by them usually declines in depressions. This rule held of the hard times of 1908 when compared with the flush times of 1907; but it did not hold of the depression of 1910–11 as compared with the revival of 1909. After the panic of 1907, bond yields reached their lowest point in the first third of 1909, and then, as business improved, bond yields rose. When the revival

faded away into renewed depression this was not checked, as one might have expected. On the contrary, yields averaged decidedly higher in 1910 than in 1909 and a little higher in 1911 than in 1910. With the return of activity in 1912 the upward trend was reinforced.

The explanation of this rise of bond yields through revival, depression, and renewed revival, must be sought in the effort of investors to force the overdue adjustment of long-time interest

TABLE V

ACTUAL AND RELATIVE RATES OF INTEREST YIELDED BY INVESTMENTS IN TEN RAILWAY BONDS, BY YEARS, 1910–12

(Continues table on p. 272, *Journal of Political Economy*, XIX)

	Actual Rates Per cent			Relative Rates Average Actual Rates in 1890–99 = 100		
	1910	1911	1912	1910	1911	1912
Chicago & Eastern Illinois	4.33	4.35	4.44	86	87	89
Missouri, Kansas & Texas	4.08	4.12	4.22	83	84	86
Wabash	4.42	4.50	4.58	93	94	96
Chesapeake & Ohio	4.25	4.26	4.35	90	91	93
Chicago, St. Paul, Minneapolis & Omaha	4.14	4.13	4.23	90	90	92
Chicago, Burlington, & Quincy	4.08	4.11	4.18	90	91	92
Central Railroad of New Jersey	4.02	4.06	4.12	90	91	92
Chicago, Milwaukee, & St. Paul	4.03	4.05	4.08	95	95	96
New York, Chicago & St. Louis	4.04	4.03	4.04	100	100	100
West Shore Railroad	3.96	3.97	4.02	103	104	105
First five	4.24	4.27	4.37	88	89	91
Second five	4.03	4.04	4.09	96	96	97
All	4.14	4.16	4.23	92	93	94

rates to the higher level of commodity prices. Bond-holders, like all other classes in the community, have been affected by the higher cost of living, and have sought a countervailing increase in money income. The article published in April, 1911, showed that on their current investments in railway bonds, buyers were getting in 1909 less than nine-tenths of the return which similar investments had yielded them in 1890–99, though living expenses were much higher. Even wage-earners had fared better. Since the cost of living has risen rather than fallen since 1909,[1] bond-holders

[1] See *Bulletin of the United States Bureau of Labor Statistics*, No. 113, March, 1913, p. 35.

TABLE VI

ACTUAL AND RELATIVE RATES OF INTEREST ON BONDS, COMMERCIAL PAPER, AND CALL LOANS IN NEW YORK, BY YEARS, QUARTERS, AND MONTHS, 1910–12

(Continues tables on pp. 273, 275, and 280, *Journal of Political Economy*, XIX)

	Actual Rates of Interest Per cent					Relative Rates of Interest Average Actual Rates in 1890–99 = 100				
	Bonds		Commercial Paper		Call Loans at Stock Exchange	Bonds		Commercial Paper		Call Loan at Stock Exchange
	West Shore R.R.	Av. of 10 Rail-Road Bonds	4–6 Months	60–90 Days		West Shore R.R.	Av. of 10 Rail-Road Bonds	4–6 Months	60–90 Days	
YEARS										
1909	3.89	4.00	4.67	3.86	2.70	102	89	78	84	82
1910	3.96	4.14	5.72	5.01	2.97	103	92	96	109	90
1911	3.97	4.16	4.71	4.02	2.57	104	93	79	88	78
1912	4.02	4.23	5.41	4.74	3.52	105	94	90	103	107
QUARTERS										
1910—1st	3.95	4.08	5.22	4.56	3.41	103	90	87	99	104
2d	3.97	4.16	5.51	4.77	3.25	104	92	92	104	99
3d	3.96	4.18	6.26	5.44	1.95	103	93	105	119	59
4th	3.96	4.14	5.98	5.26	3.24	103	92	98	115	98
1911—1st	3.96	4.14	4.64	3.98	2.62	103	92	78	87	80
2d	3.97	4.15	4.40	3.66	2.33	104	92	74	80	71
3d	3.98	4.16	4.96	4.15	2.32	104	93	83	91	71
4th	3.98	4.19	4.93	4.30	2.98	104	93	83	94	91
1912—1st	3.98	4.17	4.68	3.95	2.38	104	93	78	86	72
2d	3.99	4.20	4.83	4.11	2.83	104	93	81	90	86
3d	4.02	4.25	5.63	5.03	2.78	105	95	94	110	84
4th	4.08	4.29	6.50	5.88	6.07	107	96	109	128	184
MONTHS										
1910—Jan	3.94	4.06	5.28	4.75	4.72	103	90	88	104	143
Feb	3.94	4.07	5.16	4.44	2.78	103	90	86	97	84
March	3.97	4.10	5.23	4.50	2.88	104	91	87	98	87
April	3.98	4.13	5.59	4.75	3.28	104	92	93	104	100
May	3.99	4.16	5.45	4.75	3.63	104	92	91	104	110
June	3.95	4.18	5.50	4.81	2.77	103	93	92	105	84
July	3.98	4.20	6.16	5.38	2.41	104	93	103	117	73
Aug	3.96	4.19	6.30	5.43	1.55	103	93	105	118	47
Sept	3.95	4.13	6.31	5.53	2.00	103	92	105	121	61
Oct	3.95	4.12	6.21	5.56	3.13	103	91	104	121	95
Nov	3.96	4.14	6.15	5.50	3.23	103	92	103	120	98
Dec	3.96	4.15	5.28	4.66	3.38	103	92	88	102	103
1911—Jan	3.95	4.13	4.61	3.98	3.18	103	92	77	87	97
Feb	3.97	4.14	4.72	4.09	2.28	104	92	79	89	69
March	3.97	4.16	4.59	3.88	2.28	104	93	77	85	69
April	3.98	4.15	4.28	3.66	2.30	104	93	72	80	70
May	3.96	4.14	4.33	3.63	2.31	103	92	72	79	70
June	3.96	4.14	4.63	3.69	2.40	103	92	77	81	73
July	3.96	4.15	4.79	3.78	2.36	103	92	80	83	72
Aug	3.99	4.15	4.86	4.19	2.31	104	92	81	92	70
Sept	4.00	4.17	5.33	4.54	2.28	105	93	89	99	69
Oct	3.99	4.20	4.93	4.35	2.33	104	93	83	95	71
Nov	3.98	4.18	4.72	3.91	2.72	104	93	79	85	83
Dec	3.96	4.19	5.25	4.63	4.03	103	93	88	101	123
1912—Jan	3.98	4.17	4.63	3.90	2.43	104	93	77	85	74
Feb	3.98	4.16	4.50	3.75	2.28	104	93	75	82	69
March	3.99	4.18	4.91	4.19	2.42	104	93	82	91	74
April	3.98	4.18	5.00	4.15	3.00	104	93	84	91	91
May	3.99	4.19	5.00	4.19	2.75	104	93	84	91	84
June	4.00	4.22	4.50	4.00	2.75	105	94	75	87	84
July	4.01	4.23	5.08	4.53	2.88	105	94	85	99	87
Aug	4.02	4.23	5.69	5.00	2.84	105	94	95	109	86
Sept	4.03	4.28	6.13	5.56	2.63	105	95	102	121	80
Oct	4.06	4.30	6.50	5.93	5.33	106	96	109	129	162
Nov	4.07	4.29	6.50	5.72	6.38	106	95	109	125	194
Dec	4.10	4.29	6.50	6.00	6.50	107	95	109	131	197

have been under increased pressure to make better terms. On the other hand, borrowers are always reluctant to concede higher rates on long loans; the prevalence of mild depression has kept the new demands for loans within moderate bounds; and the investing public has remained unorganized as formerly. The one great advantage which American bond-buyers have enjoyed is that since 1909 European business has been much more active than American business, so that foreign investors have had tempting opportunities at home and have been unwilling to put their money into American securities except at high rates of interest. The rates finally attained in 1912 on the ten railway bonds included in the table are higher than the annual averages in any year since 1897. If we take the West Shore bonds, which have been less affected than any of the others by changes in the credit of the guaranteeing corporation, we find that the average yield for 1912 stands higher than at any time since 1890 with the sole exception of the panic year 1893. Thus bond-holders are beginning to come into their own again; but they must secure still further concessions if they are to offset in full the advance in cost of living.

Short-time interest rates have been rather moderate in New York ever since the active days of 1906–7. Most of the time they have stood below their averages for the decades 1890–99 and 1900–1909. But on the whole they have ruled somewhat higher than in the depression of the middle nineties. For European prosperity has exercised much the same influence in the discount as in the bond market. New York banks have made large loans in Berlin and other foreign markets, and this European demand for American funds has moderated somewhat the decline in domestic discount rates.

IV. THE INDEX NUMBER OF BONDS

Readers of the article published in April, 1911, may remember that the relative prices of bonds in these tables are computed by dividing the yield at any given time into the average actual yield in 1890–99. Hence the index number of bond prices which follows presents merely a new series of deductions from the data in Tables V and VI.

TABLE VII

AVERAGE RELATIVE PRICES OF TEN RAILWAY BONDS BY YEARS, 1910–12
COMPUTED ON THE BASIS OF AVERAGE ACTUAL YIELDS IN 1890–99

(Continues table on p. 292, *Journal of Political Economy*, XIX)

	1909	1910	1911	1912
Chicago & Eastern Illinois	121.0	115.7	115.1	112.8
Missouri, Kansas & Texas	122.4	120.3	119.1	116.3
Wabash	112.5	107.9	106.0	104.2
Chesapeake & Ohio	113.8	110.6	110.3	108.0
Chicago, St. Paul, Minneapolis & Omaha	116.6	111.2	111.5	108.8
Chicago, Burlington & Quincy	115.1	111.1	110.3	108.4
Central Railroad of New Jersey	114.5	110.8	109.7	108.1
Chicago, Milwaukee, & St. Paul	110.0	105.7	105.2	104.4
New York, Chicago & St. Louis	102.5	99.9	100.2	99.9
West Shore Railroad	98.4	96.9	96.4	95.2
First five	117.3	113.1	112.4	110.0
Second five	108.1	104.8	104.4	103.2
All	112.7	109.0	108.4	106.6

Every bond in the list fell in price between 1909 and 1912, though the fall was rather less among the stronger than among the weaker issues. The heaviest fall occurred between 1909 and 1910, or more accurately between May, 1909, and July, 1910. After the latter date prices rose a little; but in March, 1912, they started on another decline which lasted until October and brought the lowest level touched since the panic of 1907.

Into the comparison between bond and stock prices a new column has been introduced. It gives the relative prices of those ten out of the fifty stocks dealt with which have paid dividends in every year since 1890.[1] Although seven out of the ten are common stocks, this dividend-paying group has been steadier in price than the ten preferred stocks. Since the dividend-paying stocks are real competitors with bonds for the patronage of investors, it is not surprising to find their movements synchronizing roughly with the fluctuations of bonds—albeit the oscillations are much

[1] The common stocks of the Central Railroad of New Jersey, Chicago & Northwestern, Delaware & Hudson, Illinois Central, New York Central, New York, New Haven & Hartford, and the American Express Co., together with the preferred stocks of the Chicago, Milwaukee & St. Paul, Chicago & Northwestern, and Cleveland, Cincinnati, Chicago, & St. Louis.

TABLE VIII

RELATIVE PRICES OF BONDS AND STOCKS BY YEARS, QUARTERS, AND MONTHS, 1910–12

(Continues tables on pp. 292 and 295, *Journal of Political Economy*, XIX)

YEARS	RELATIVE PRICES OF BONDS COMPUTED ON BASIS OF AVERAGE ACTUAL YIELDS IN 1890–99		RELATIVE PRICES OF STOCKS COMPUTED ON BASIS OF AVERAGE ACTUAL PRICES IN 1890–99 = 100			
	West Shore R.R.	Average of 10 Railway Bonds	Average of 10 Dividend-Paying Stocks	Average of 10 Preferred Stocks	Average of 10 Common Stocks	Average of 40 Common Stocks
1909	98	113	150	169	280	277
1910	97	109	142	148	248	254
1911	96	108	137	138	233	248
1912	95	107	141	123	215	243
QUARTERS						
1910—1st	97	111	150	162	275	274
2d	96	109	142	152	255	258
3d	97	108	135	137	225	235
4th	97	109	139	142	236	252
1911—1st	97	109	139	143	240	253
2d	96	109	139	142	240	256
3d	96	108	134	136	229	246
4th	96	108	136	130	223	241
1912—1st	96	108	142	125	211	238
2d	96	107	144	124	218	246
3d	95	106	142	121	216	245
4th	94	105	138	120	214	241
MONTHS						
1910—Jan	97.1	111.1	154.6	167.7	284.3	280.0
Feb	97.1	110.8	148.1	156.2	262.8	263.5
Mar	96.4	110.0	148.8	160.8	278.2	278.5
April	96.2	109.2	146.1	156.6	266.5	265.5
May	95.9	108.4	142.0	154.0	260.0	262.0
June	96.9	107.9	137.8	146.0	237.8	249.0
July	96.2	107.4	134.4	136.8	217.4	232.5
Aug	96.6	107.6	135.4	138.9	227.4	239.0
Sept	96.9	109.2	136.2	150.5	229.7	238.5
Oct	96.9	109.5	140.9	145.5	242.9	256.5
Nov	96.6	108.9	139.6	120.4	238.5	254.5
Dec	96.6	108.7	135.9	140.7	242.6	249.0

TABLE VIII.—*Concluded*

Months	Relative Prices of Bonds Computed on Basis of Average Actual Yields in 1890–99		Relative Prices of Stocks Computed on Basis of Average Actual Prices in 1890–99 = 100			
	West Shore R.R.	Average of 10 Railway Bonds	Average of 10 Dividend-Paying Stocks	Average of 10 Preferred Stocks	Average of 10 Common Stocks	Average of 40 Common Stocks
1911—Jan.	96.9	109.1	137.8	141.2	254.3	254.0
Feb.	96.4	109.0	140.4	156.5	243.6	258.5
March	96.4	108.5	137.6	153.2	255.9	258.0
April	96.2	108.6	137.6	158.3	234.7	254.5
May	96.6	108.9	138.5	145.8	238.7	256.0
June	96.6	108.9	139.8	144.9	248.0	265.0
July	96.6	108.8	138.6	142.0	244.5	260.0
Aug.	95.9	108.7	134.6	136.6	227.4	247.0
Sept.	95.7	108.2	129.6	132.3	215.8	233.0
Oct.	95.9	107.5	133.1	134.5	222.4	239.0
Nov.	96.2	108.0	137.3	120.7	229.2	245.5
Dec.	96.6	110.1	137.2	126.0	233.1	246.0
1912—Jan.	96.2	108.1	138.6	125.3	211.2	237.0
Feb.	96.2	108.3	143.2	123.8	208.4	235.5
March	95.9	108.0	142.8	125.1	213.3	242.0
April	96.2	107.8	145.2	128.2	224.0	250.0
May	95.9	107.6	143.4	123.9	217.7	247.0
June	95.7	106.9	143.1	120.8	212.3	242.0
July	95.4	106.6	142.0	119.7	211.5	240.0
Aug.	95.2	106.6	142.2	121.5	217.4	246.5
Sept.	95.0	105.5	142.1	123.1	218.9	248.0
Oct.	94.3	104.9	140.3	123.0	217.3	246.0
Nov.	94.0	105.1	138.9	121.9	216.5	242.5
Dec.	93.3	105.0	135.1	116.7	207.0	234.0

wider. The chief difference to be noted is that these stocks rose a trifle in 1912, while bonds continued to fall.

V. CONSPECTUS OF SECURITY PRICES AND INTEREST RATES BY YEARS, 1890–1912

It is convenient to have the general results of these investigations assembled in a single place. The security prices and interest rates are therefore given for the whole period 1890–1912 in four tables, of which two show averages by years, and two by phases of business cycles. In studying the latter tables it is important to remember that comparisons of successive averages sometimes give a wrong impression. For example, a long period of depres-

sion in which stock prices decline from a high to a low level may well have a higher average than the succeeding period of revival, in which prices are rising gradually from the low point attained

TABLE IX

RELATIVE PRICES OF BONDS, STOCKS, AND COMMODITIES. BY YEARS, 1890–1912
ARITHMETIC MEANS. AVERAGE ACTUAL PRICES IN 1890–99 = 100

YEAR	BONDS			STOCKS				COMMODITIES
	United States 4's of 1907 and 1925	West Shore R.R.	Average of 10 Railway Bonds	10 Dividend-Paying Stocks	Preferred Stocks in 10 Railways	Common Stocks in 10 Railways	Common Stocks in 40 Transportation Companies	145 Staples
1890.....	114	99	96	104	108	113	121	114
1891.....	104	97	93	100	104	113	113	113
1892.....	99	98	97	105	115	124	123	106
1893.....	91	95	95	96	87	89	93	105
1894.....	99	99	98	94	82	82	82	96
1895.....	96	100	101	95	87	87	85	93
1896.....	88	99	100	92	85	81	77	89
1897.....	101	103	103	94	94	90	84	89
1898.....	103	104	107	102	107	97	94	93
1899.....	112	107	114	118	130	126	128	103
1900.....	127	107	115	121	133	144	134	111
1901.....	140	108	119	142	178	262	211	110
1902.....	140	108	120	157	191	305	250	114
1903.....	139	103	114	136	163	238	201	114
1904.....	132	103	115	136	156	215	192	114
1905.....	138	103	118	158	181	278	250	116
1906.....	135	101	114	159	180	291	267	122
1907.....	127	96	107	129	138	206	204	130
1908.....	113	97	108	126	130	195	201	121
1909.....	110	98	113	150	169	280	277	124
1910.....	101*	97	109	142	148	248	254	131
1911.....	103*	96	108	137	138	233	248	128†
1912.....	114*	95	107	141	123	215	243	...
Averages								
1890–99..	100	100	100	100	100	100	100	100
1900–09..	130	102	114	141	162	241	219	118

*Computed from yields in January, April, July, and October, as given in the *Report of the Comptroller of the Currency.*

†Estimated.

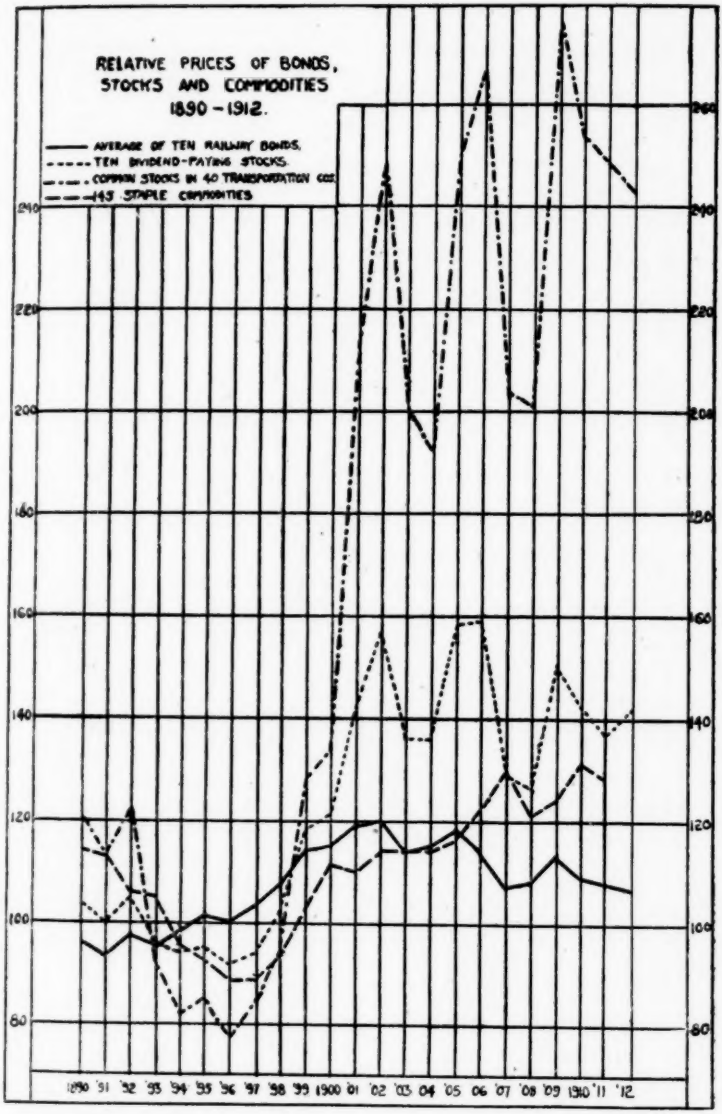
at the end of depression. Such misleading appearances can be easily detected by turning to the monthly tables.

The general trend of commodity and security prices can be seen most easily in the two charts which follow Table X.

TABLE X

RELATIVE PRICES OF BONDS AND STOCKS IN SEASONS OF BUSINESS PROSPERITY, CRISIS, AND DEPRESSION, 1890–1912

	Bonds		Stocks		
	W.S. R.R.	Av. of 10 Railroad Bonds	Av. of 10 Preferred Stocks	Av. of 10 Common Stocks	Av. of 40 Common Stocks
January, 1890—July, 1890—Prosperity	100	97	113	123	131
August, 1890—December, 1890—Minor crisis	97	94	103	108	115
January, 1891—July, 1891—Depression	97	93	100	103	107
August, 1891—August, 1892—Prosperity	98	96	115	127	123
September, 1892—October, 1893—Approach of crisis	97	97	106	112	116
May, 1893—October, 1893—Major crisis	94	93	78	80	84
November, 1893—March, 1895—Severe depression	99	98	81	82	81
April, 1895—September, 1895—Revival	100	102	93	94	91
October, 1895—June, 1896—Renewed depression	100	101	88	84	82
July, 1896—October, 1896—Free-silver campaign	98	97	79	74	71
November, 1896–June, 1897—Depression	102	102	86	83	77
July, 1897—February, 1898—Revival	104	105	103	98	93
March, 1898—April, 1898—Spanish war impending	101	104	98	85	87
May, 1898—September, 1899—Prosperity	106	111	121	113	113
October, 1899—December, 1899—Minor crisis	107	113	132	127	133
January, 1900—September, 1900—Slight depression	107	114	131	138	130
October, 1900—October, 1902—Prosperity	108	119	180	269	219
November, 1902—July, 1904—"Rich man's panic"	103	114	162	228	195
August, 1904—August, 1905—Revival	103	118	177	263	232
September, 1905—September, 1906—Prosperity	102	116	182	290	265
October, 1906—September, 1907—Approach of crisis	98	110	157	242	231
October, 1907—December, 1907—Major crisis	93	101	122	161	166
January, 1908—September, 1908—Severe depression	97	107	124	184	190
October, 1908—December, 1909—Revival	98	112	166	272	269
January, 1910—December, 1911—Reaction	97	109	143	241	251
January, 1912—December, 1912—Revival	95	107	123	215	243


RELATIVE PRICES OF BONDS, STOCKS AND COMMODITIES 1890 – 1912.
AVERAGE OF TEN RAILWAY BONDS.
TEN DIVIDEND-PAYING STOCKS.
COMMON STOCKS IN 40 TRANSPORTATION COS.
143 STAPLE COMMODITIES
240
220
200
180
160
140
120
100
80
1890 '91 '92 '93 '94 '95 '96 '97 '98 '99 1900 '01 '02 '03 04 '05 06 '07 '08 '09 1910 '11 '12

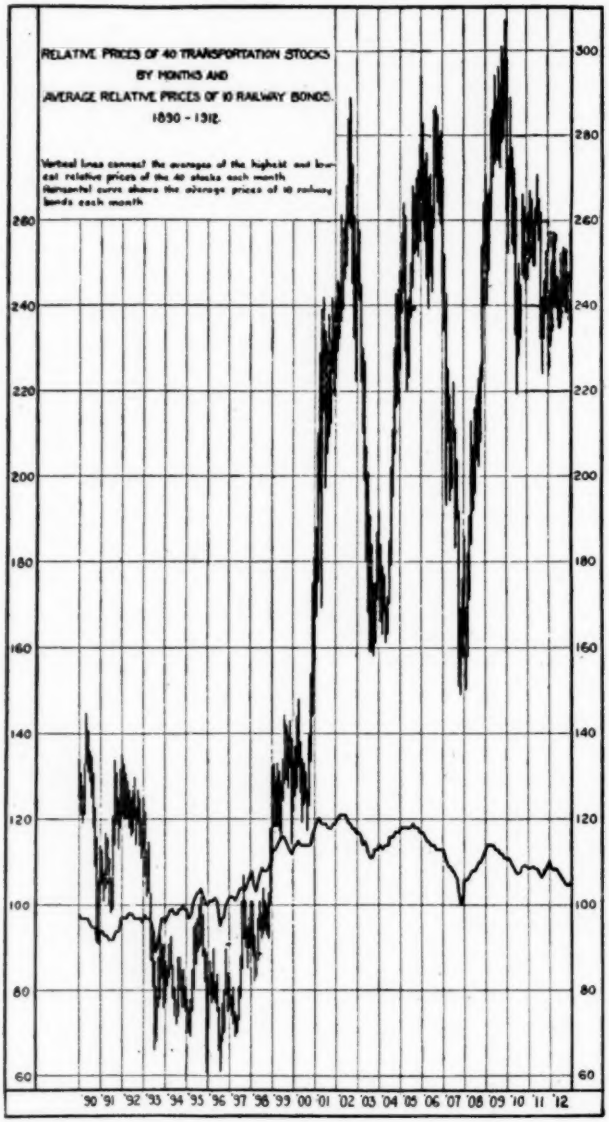

RELATIVE PRICES OF 40 TRANSPORTATION STOCKS
BY MONTHS AND
AVERAGE RELATIVE PRICES OF 10 RAILWAY BONDS.
1890 - 1912.
Vertical lines connect the averages of the highest and lowest relative prices of the 40 stocks each month
Horizontal curve shows the average prices of 10 railway bonds each month
300
280
260
240
220
200
180
160
140
120
100
80
60
'90 '91 '92 '93 '94 '95 '96 '97 '98 '99 00 01 02 03 04 05 06 07 08 09 10 11 12

TABLE XI

ACTUAL AND RELATIVE RATES OF INTEREST ON BONDS, COMMERCIAL PAPER, AND CALL LOANS IN NEW YORK BY YEARS, 1890–1912

YEAR	ACTUAL RATES OF INTEREST						RELATIVE RATES OF INTEREST. AVERAGE ACTUAL RATES 1890–99 = 100					
	Bonds			Commercial Paper		Call Loans at Stock Exchange	Bonds			Commercial Paper		Call Loans at Stock Exchange
	U.S. 4's of 1907 and 1925	West Shore R.R.	Av. of 10 Railroad Bonds	4–6 Months	60–90 Days		U.S. 4's of 1907 and 1925	West Shore R.R.	Av. of 10 Railroad Bonds	4–6 Months	60–90 Days	
1890.....	2.43%	3.88%	4.72%	6.89%	5.64%	5.81%	88	101	105	115	123	176
1891.....	2.65	3.96	4.85	6.50	5.41	3.42	96	103	107	109	118	104
1892.....	2.80	3.90	4.64	5.38	4.04	3.03	101	102	103	90	88	92
1893.....	3.04	4.02	4.75	7.62	6.86	4.58	110	105	105	127	150	139
1894.....	2.79	3.87	4.59	5.22	3.04	1.06	101	101	102	87	66	32
1895.....	2.89	3.82	4.48	5.73	3.64	1.85	105	100	99	96	79	56
1896.....	3.14	3.85	4.54	7.02	5.76	4.21	114	101	100	117	126	128
1897.....	2.73	3.72	4.38	4.72	3.57	1.77	99	97	97	79	78	54
1898.....	2.69	3.69	4.21	5.31	3.82	2.16	97	96	93	89	83	66
1899.....	2.47	3.56	3.96	5.48	4.05	5.04	89	93	88	92	88	153
1900.....	2.18	3.57	3.95	5.71	4.38	2.93	79	93	88	95	96	89
1901.....	1.97	3.54	3.79	5.41	4.24	3.98	71	93	85	90	93	121
1902.....	1.98	3.55	3.77	5.75	4.88	5.22	72	93	84	96	106	159
1903.....	1.99	3.70	3.96	6.21	5.43	3.79	72	97	88	104	118	115
1904.....	2.09	3.72	3.92	5.13	4.24	1.78	76	97	87	86	93	54
1905.....	2.00	3.70	3.82	5.17	4.35	4.39	73	97	85	86	95	133
1906.....	2.04	3.80	3.94	6.24	5.68	6.44	74	99	88	104	124	196
1907.....	2.18	3.97	4.22	6.55	6.27	7.27	79	104	94	109	137	221
1908.....	2.44	3.95	4.16	4.95	4.42	1.97	88	103	93	83	96	60
1909.....	2.52	3.89	4.00	4.67	3.86	2.70	91	102	89	78	84	82
1910.....	2.74*	3.96	4.14	5.72	5.01	2.97	99*	103	92	96	109	90
1911.....	2.68*	3.97	4.16	4.71	4.02	2.57	97*	104	93	79	88	78
1912.....	2.43*	4.02	4.23	5.41	4.74	3.52	88*	105	94	90	103	107
Averages												
1890–99	2.76	3.83	4.51	5.99	4.58	3.29	100	100	100	100	100	100
1900–09	2.14	3.74	3.95	5.61	4.78	4.05	77	98	88	93	104	123

*Computed from average yields for January, April, July, and October as given by the *Reports of the Comptroller of Currency.*

TABLE XII

RATES OF INTEREST YIELDED BY INVESTMENTS IN BONDS AND BY SHORT-TIME LOANS IN SEASONS OF BUSINESS PROSPERITY, CRISIS, AND DEPRESSION, 1890–1912

	Actual Rates of Interest					Relative Rates of Interest Average Actual Rates 1890–99 = 100				
	Bonds		Commercial Paper		Call Loans at Stock Exchange	Bonds		Commercial Paper		Call Loans at Stock Exchange
	West Shore R.R.	Av. of 10 Railroad Bonds	4–6 Months	60–90 Days		West Shore R.R.	Av. of 10 Railroad Bonds	4–6 Months	60–90 Days	
Jan., 1890—July, 1890—Prosperity	3.83%	4.65%	6.41%	5.17%	4.96%	100	103	107	113	151
Aug., 1890—Dec., 1890—Minor crisis	3.94	4.82	7.60	6.56	7.08	103	107	127	143	215
Jan., 1891—July, 1891—Depression	3.96	4.87	6.57	5.38	3.26	103	108	110	117	99
Aug., 1891—Aug., 1892—Prosperity	3.92	4.70	5.51	4.30	2.57	102	104	92	94	78
Sept., 1892—Apr., 1893—Approach of crisis	3.94	4.65	6.24	5.38	5.23	103	103	104	117	159
May, 1893—Oct., 1893—Major crisis	4.09	4.86	9.23	8.19	5.31	107	108	154	179	161
Nov., 1893—Mar., 1895—Severe depression	3.87	4.60	5.48	3.25	1.22	101	102	92	71	37
Apr., 1895—Sept., 1895—Revival	3.81	4.43	5.29	3.31	1.45	100	98	88	72	44
Oct., 1895—June, 1896—Renewed depression	3.81	4.45	6.59	4.94	3.17	100	99	110	108	96
July, 1896—Oct., 1896—Free-silver campaign	3.92	4.67	8.10	7.47	5.84	102	104	135	163	177
Nov., 1896—June, 1897—Depression	3.77	4.44	4.83	3.62	2.17	99	98	81	79	66
July, 1897—Feb., 1898—Revival	3.69	4.29	4.81	3.61	2.02	96	95	80	79	61
Mar., 1898—Apr., 1898—Spanish war impending	3.78	4.35	6.84	5.22	2.57	99	96	114	114	78
May, 1898—Sept., 1899—Prosperity	3.61	4.05	5.12	3.65	3.02	94	90	86	80	92
Oct., 1899—Dec., 1899—Minor crisis	3.59	4.00	6.73	5.45	8.74	94	89	112	119	265
Jan., 1900—Sept., 1900—Slight depression	3.57	3.96	5.68	4.27	2.39	93	88	95	93	73
Oct., 1900—Oct., 1902—Prosperity	3.54	3.79	5.56	4.52	4.47	93	84	93	99	136
Nov., 1902—July, 1904—"Rich man's panic"	3.70	3.95	5.82	5.09	3.20	97	88	97	111	97
Aug., 1904—Aug., 1905—Revival	3.70	3.84	4.93	4.06	2.35	97	85	82	89	71
Sept., 1905—Sept., 1906—Prosperity	3.76	3.90	6.06	5.42	6.53	98	86	101	118	198
Oct., 1906—Sept., 1907—Approach of crisis	3.90	4.10	6.57	6.06	5.25	102	91	110	132	159
Oct., 1907—Dec., 1907—Major crisis	4.13	4.45	7.33*	7.50	15.95	108	99	122*	164	484
Jan., 1908—Sept., 1908—Severe depression	3.96	4.20	5.05	4.50	1.88	103	93	84	98	57
Oct., 1908—Dec., 1909—Revival	3.90	4.01	4.61	3.99	2.57	102	89	77	87	78
Jan., 1910—Dec., 1911—Reaction	3.97	4.15	5.23	4.52	2.77	104	92	87	99	84
Jan., 1912—Dec., 1912—Revival	4.02	4.23	5.41	4.74	3.52	105	94	90	103	107

*Nominal.

CERTAIN CHANGES IN NEW YORK'S POSITION AS A FINANCIAL CENTER

During the last year much attention has been given to the dominant position of New York City in our banking system. The extent of the control exercised by New York has been and is so great that several important changes that are taking place have escaped general notice.

That the position of New York City as a banking center has undergone a change in the last few years is shown by the facts: (1) that a smaller amount of cash is being withdrawn from there each fall for crop-moving purposes; (2) that a relatively smaller amount of cash is held by the New York banks than in former years; (3) that New York holds relatively less of the reserve funds of the entire country than in the past; (4) that the total banking resources of New York have been growing less rapidly than those of other parts of the country; and (5) that strong banking centers are rapidly being developed in other sections. The rest of the United States is apparently becoming more and more independent of New York for cash and for the financing of relatively small enterprises. With the financing of large ventures and with the general question of extension of credit this paper does not deal.

That the fall movement of cash out of New York is less than in former years is a fact which few people seem to have noticed. Probably very few indeed are aware that the net movement during the fall months is now in the other direction. Several years ago this movement was carefully analyzed, for the years 1899–1908 inclusive, by Professor E. W. Kemmerer in his report to the National Monetary Commission.[1] He averaged the movement for this period and found a definite flow of money out from New York each fall—a movement averaging $3,434,000 in the thirty-eighth week of the year (the latter part of September) when it was at its maximum. The maximum movement into New York he found to be $6,895,000 and to occur in the latter part of January.

[1] *Seasonal Variations in the Relative Demand for Money*, etc., pp. 124–29.

Since these statistics were prepared, an important change has occurred. Professor Kemmerer relied upon two sources of information: (1) special reports for 1905–8 from the New York clearing-house banks to the Monetary Commission, and (2) the weekly figures from these same banks for the net interior movement of cash into and out of the banks during the ten years 1899–1908. In this paper, of course, only the latter source of information is available, and all statistics of cash movements have been compiled from the weekly statements in the *Commercial and Financial Chronicle*. All

TABLE I

NET MOVEMENT OF CASH BETWEEN NEW YORK CLEARING-HOUSE BANKS AND THE INTERIOR (000 OMITTED)

(The sign + indicates movement to New York)

YEAR	MONTHS					TOTAL FOR FIVE MONTHS
	August	September	October	November	December	
1899	$+ 3,984	$−18,884	$− 9,211	$− 3,311	$+ 3,806	$− 23,616
1900	+ 8,478	−15,657	−22,495	+ 3,148	− 69	− 26,595
1901	− 755	−12,940	−13,597	+12,592	+ 1,409	− 13,291
1902	+ 3,173	− 9,077	− 6,973	+ 71	+ 2,413	− 10,393
1903	+15,733	− 5,491	−18,948	−13,584	+ 6,615	− 15,675
1904	+ 3,228	−12,994	− 7,676	+ 4,975	+14,925	+ 2,458
1905	+ 326	−19,906	− 4,585	− 4,993	+ 2,762	− 26,396
1906	− 4,470	−19,966	−24,605	+ 138	+ 5,131	− 43,772
1907	+ 115	− 6,582	−29,525	−84,953	−23,193	−144,138
1908	+23,149	− 2,675	+ 56	+ 1,114	+13,656	+ 35,300
1909	+ 9,430	− 4,687	− 3,200	+ 2,850	+23,663	+ 28,056
1910	+19,317	− 3,120	− 2,836	+ 8,674	+ 9,042	+ 31,077
1911	+27,676	+ 8,353	+ 5,958	+16,891	+45,012	+103,890
1912	+22,343	+ 6,357	+ 6,734	+ 8,707	+23,570	+ 67,711

statements of interior movements as reported in this publication include telegraphic transfers by the New York Subtreasury.

An examination of this interior movement as presented in Table I shows that a very pronounced change has taken place since 1907. Before that date the movement during the fall months, August–December inclusive, was out of the city. The figures given begin with 1899 (Professor Kemmerer's starting-point) and are continued through 1912—a total of fourteen years.[1] Prior to 1908 New York

[1] The *Chronicle* is published each week on Saturday, and it is impossible to follow closely the limits of each calendar month. Instead, the dates on which the paper appeared have been used as the basis. Thus if an issue of the *Chronicle* was dated

was the loser in every year except 1904, when her gain was slight; but even in that year there was a heavy net loss in September and October. The heaviest total loss appeared in 1907 because of the large withdrawals during the panic. With 1908 came a change. Since that time New York has gained rather than lost during the fall months. In 1908 only September shows a loss, and in 1909 and 1910 only September and October; while for 1911 and 1912 every month shows a gain for New York. In 1911 the total gain for the period was $103,890,000, and in 1912 it was $67,711,000. In 1911 there were net losses in only three weeks—those of September 9, October 7, and October 14. In 1912 there were likewise only three weeks of net loss—$1,855,000 for September 14, $423,000 for October 26, and $837,000 for November 30.

It may be urged that the dulness of business since the panic of 1907 is the explanation. But whatever may be said of other years, 1912 was a year of bumper crops, expanding business, and general prosperity; and in September of that year the gain for New York was the largest for any September during the years under review with the exception of 1911. In October, 1912, the gain was the heaviest for any October of the period. Evidently some other change has occurred. It is not true that the out-of-town banks are no longer sending their money to New York. Table II gives, in column II, the net interior movement for the entire year and shows clearly that, in absolute amount, New York is gaining more than ever. Prior to 1908, every year except 1906 and 1907 shows a gain; but beginning with 1908 and continuing through 1912 this gain has been much larger than before, reaching a maximum of $325,158,000 in 1912. Prior to 1907, New York's greatest gain was $134,940,000 in 1904, but since that date the gain has never been less than $213,591,000. It is clear that the out-of-town banks are sending their money to New York in larger absolute quantities than ever before.

January 1, the movement recorded for the week has been credited to January instead of to December. This is arbitrary but in no way affects the general conclusions presented. It has been adopted because of the difficulty of assigning the proper amount to each month when a week is divided between two months. Net monthly results have been secured by first combining the net weekly movements as given and then combining these monthly figures to secure the totals for each year.

The reason for this movement of cash into New York is generally understood to be the offer of interest by the New York banks for out-of-town deposits. The legal requirements as to reserves must be met by outside banks, but cash held in their vaults is earning nothing. Since a part of the reserve may be transferred to approved agents in reserve cities where it will receive 2 per cent, the natural thing is for the out-of-town banks thus to deposit it. The change in the direction of the fall movement seems to be explained by the increasing tendency on the part of these out-of-town banks to lend their money directly on the New York market. It is currently reported that high money rates in 1905 and 1906 led the banks to begin the practice. Their New York reserve agents hesitated to perform the service but were forced into it by the trust companies who offered to do it free of charge if the national banks would not.

The statistics prepared for the Congressional committee investigating the alleged "Money Trust" show an increase in the practice as follows:[1]

LOANS BY SUNDRY NEW YORK FINANCIAL INSTITUTIONS FOR THEIR CORRESPONDENTS

	January	July	November
1908	$106,621,000	$ 89,248,000	$ 85,011,000
1909	103,524,000	121,648,000	168,557,000
1910	208,260,000	160,185,000	125,201,000
1911	143,876,000	128,804,000	148,820,000
1912	140,901,000	141,028,000	240,480,000

The tables prepared for the committee show a slight increase in the amount loaned on stock-exchange collateral by the New York banks for themselves, but a very much larger increase in the amount loaned by them for their correspondents. They also show that although these correspondents are lending more at all times of the year than formerly, the amount so loaned in the fall has grown much more rapidly than the amount at other seasons. On November 1, 1912, the total was nearly three times that on November 1, 1908.

[1] *Money Trust Investigation*, p. 1193. The loans as given are those "outstanding on or about January 1, July 1, and November 1 in each of the years 1908 to 1912, inclusive."

The opportunity to lend these large sums at the high rates current each fall for demand loans goes far to explain the reason why there is now a movement of cash into, rather than out of, New York during the fall months. The out-of-town banks no longer content themselves with the 2 per cent allowed them by their reserve agents. If they have any surplus funds over and above their required reserves, a direct loan will yield perhaps 4, 6, or 8 per cent, or even more. The inducement to use funds in this manner is very strong. Money so used does not, of course, count as a part of reserves as it would if left on deposit with the reserve agent, but any excess above the amount needed for reserve purposes may be thus loaned. The lending bank may and in some cases does pass upon the collateral given as security, but often, especially if the lending bank is small, all is left to the discretion of the New York agent, and the out-of-town bank is merely sent later, for approval, a list of the securities held. Thus any surplus above reserve requirements may be employed to advantage and anything that may be spared from local needs may also be sent on for a similar use. When the out-of-town bank finds it necessary to build up its reserves these loans may be called, the New York bank still acting as agent in the transaction. The money thus secured may be left on deposit in New York and counted as a part of reserves or, if necessary, the cash may be withdrawn from the city.

There is another change that aids in explaining the lessened autumnal demand on New York. Checks are being used to an increasing extent in rural communities. Just how much of a change has occurred it is impossible to determine, but numerous inquiries addressed to western bankers have found them agreed that there is a constantly decreasing demand for cash for local needs. Farmers and merchants ask for less actual money and prefer accounts against which checks may be drawn. Even if this practice should greatly increase, the demand for cash would not be entirely eliminated but merely lessened. It would still be necessary to withdraw cash from New York and other centers to build up local reserves, but the amount needed would not be nearly so great as before.

That the continual flow of money into New York does not result in a large accumulation of cash in that city is explained by the losses

to the Subtreasury and through gold exports. An examination of Table II (in which the net interior movement is given in columns I and II, the Subtreasury and import and export movement in columns III and IV, with a combination of both in columns V and VI) shows that the net result is no great gain in cash for the New York banks for the entire year, and only a relatively slight loss during the fall months.

TABLE II

NET CASH MOVEMENTS INTO (+) AND OUT OF (−) NEW YORK CITY CLEARING-HOUSE BANKS (000 OMITTED)

YEAR	INTERIOR MOVEMENT		SUBTREASURY AND GOLD IMPORTS AND EXPORTS		TOTAL NET MOVEMENT	
	I Aug.–Dec.	II Entire Year	III Aug.–Dec.	IV Entire Year	V Aug.–Dec.	VI Entire Year
1899	$− 23,616	$+ 37,116	$− 18,715	$− 58,859	$− 42,331	$− 21,743
1900	− 26,595	+ 52,563	− 117	− 21,732	− 26,712	+ 30,831
1901	− 13,291	+ 77,569	− 18,050	− 66,422	− 31,341	+ 11,147
1902	− 10,393	+ 50,067	− 23,144	− 54,675	− 33,537	− 4,608
1903	− 15,675	+ 87,954	+ 251	− 55,242	− 15,424	+ 32,712
1904	+ 2,458	+134,940	− 45,258	− 56,608	− 42,800	+ 78,332
1905	− 26,396	+ 71,862	− 30,395	−105,019	− 56,791	− 33,157
1906	− 43,772	− 36,143	+ 11,337	+ 75,621	− 32,435	+ 39,478
1907	−144,138	− 92,255	+134,211	+135,765	− 9,927	+ 43,510
1908	+ 35,300	+264,100	− 35,757	− 48,653	− 457	+215,447
1909	+ 28,056	+223,553	− 71,735	−147,297	− 43,679	+ 76,256
1910	+ 31,077	+213,591	− 50,368	−122,666	− 19,291	+ 90,925
1911	+103,890	+302,377	−103,858	−193,364	+ 32	+109,013
1912	+ 67,711	+325,158	−103,616	−277,666	− 35,905	+ 47,492

The interesting change has come since 1907. Since that date each autumn shows a Subtreasury and export loss greater than in any year up to 1907, except that the loss of $45,258,000 in 1904 exceeded that of $35,757,000 in 1908. For the entire year a similar change has been taking place. A combination of these two movements in columns V and VI shows no change of any significance. New York has been the gainer in eleven of the fourteen years, although a loser in the fall months during every year but one. The total net movement shows no important change except in 1908.

All the facts thus far presented lead to no conclusion relative to a change in New York's position except that there has not been for several years past a net loss to New York for crop-moving purposes.

Instead, New York gains from the interior during this period, but has lost through the Subtreasury and gold exports an amount sufficient to offset these gains.

Professor A. P. Andrew, in a letter appearing in the *New York Evening Post* of January 8, 1913, contends that New York lends large sums to the interior each autumn and that if these "loans to correspondents" were included "it would doubtless be evident that any apparent increase in the net balance of out-of-town money in New York about November 1 of the present year was more than offset by an increase in loans made by the New York banks to their

TABLE III

AMOUNT AND NATURE OF RESERVE HELD BY NATIONAL BANKS ON OR ABOUT OCTOBER 1 OF EACH YEAR (00,000 OMITTED)

YEAR	RESERVE CITIES (EXCEPT CENTRAL RESERVE CITIES)		LOCALITIES OTHER THAN RESERVE CITIES		ENTIRE UNITED STATES	
	Lawful Money	Due from Reserve Agents	Lawful Money	Due from Reserve Agents	Lawful Money	Due from Reserve Agents
1902.....	$128,2	$129,8	$144,9	$150,7	$523,8	$280,5
1903.....	139,2	122,1	162,6	155,8	572,9	277,9
1904.....	152,0	141,4	164,0	163,8	681,9	305,2
1905.....	166,1	156,6	178,7	181,9	688,9	338,4
1906.....	172,0	164,0	193,7	204,7	651,6	368,6
1907.....	196,6	165,7	216,8	226,7	729,0	392,4
1908.....	227,0	188,9	235,0	220,1	899,1	409,0
1909.....	232,9	207,9	240,4	241,5	886,6	449,5
1910.....	229,4	204,6	251,0	258,3	884,8	462,9
1911.....	246,6	224,4	256,6	273,8	929,8	498,2
1912.....	251,7	236,8	271,6	299,9	931,0	536,7

correspondents." However, he introduces no facts in support of this contention and it is difficult to see why the New York banks would send money out of the city in large quantities when interest rates are such as to bring such large sums into the city.

That New York holds relatively less cash than formerly is another change of importance. This is shown by Table III, which has been compiled from the reports of the Comptroller of the Currency, beginning with 1902, rather than with 1899 as do the previous tables, because a change at that date in the method of presenting the facts makes accurate comparisons with earlier years impossible. The table gives the reserve in millions of dollars held by the national

banks of the reserve cities, of localities other than reserve cities, and of the entire United States, respectively. The figures have been taken in every case from the report nearest to October 1. The reserve is given in its two parts: (1) lawful money held (including redemption fund at Washington), and (2) the amount with reserve agents. Table IV shows the amount in cash as compared with the amount with reserve agents in percentage form.

There has been no change of importance during the period in the practice of the banks as to the percentage of reserve held with reserve agents. The amount of cash held as compared with the

TABLE IV

PERCENTAGE OF LAWFUL MONEY AND OF DEPOSITS WITH RESERVE AGENTS IN THE RESERVES OF NATIONAL BANKS ON OR ABOUT OCTOBER 1 OF EACH YEAR

YEAR	RESERVE CITIES (EXCEPT CENTRAL RESERVE CITIES)		LOCALITIES OTHER THAN RESERVE CITIES		ENTIRE UNITED STATES	
	Lawful Money (Percentage)	With Reserve Agent (Percentage)	Lawful Money (Percentage)	With Reserve Agent (Percentage)	Lawful Money (Percentage)	With Reserve Agent (Percentage)
1902.....	49.6	50.3	49.0	50.9	65.1	34.8
1903.....	53.2	46.7	51.0	48.9	67.3	32.6
1904.....	51.8	48.1	50.0	49.9	69.0	30.9
1905.....	51.4	48.5	49.5	50.4	67.0	32.9
1906.....	51.1	48.8	48.6	51.3	63.8	36.1
1907.....	54.2	45.7	48.8	51.1	65.0	34.9
1908.....	54.5	45.4	51.6	48.3	68.7	31.2
1909.....	52.8	47.1	49.8	50.1	66.3	33.6
1910.....	52.8	47.1	49.2	50.7	65.6	34.3
1911.....	52.3	47.6	48.3	51.6	65.1	34.8
1912.....	51.5	48.4	47.5	52.4	63.4	36.5

amount of deposits with reserve agents is about the same in the later years as in the earlier. Such changes as have occurred since 1908 have been in the direction of a larger rather than a smaller percentage with reserve agents. Thus for the country as a whole this proportion has increased from 31 per cent to 36 per cent, for the country banks from 48 per cent to 52 per cent, and for the reserve city banks from 45 per cent to 48 per cent. In each case this is a return to conditions prior to 1907. Apparently the banks for a time hesitated to intrust a large proportion of their reserves to banks in other cities, but this hesitation has gradually disappeared until now

conditions similar to those which preceded the panic have returned. The national banks are still taking advantage of their legal right to leave a part of their reserves with approved reserve agents. They are not hoarding their cash in their own vaults.

But the New York national banks hold relatively less of this amount than formerly. Table V presents the same figures in a different manner. In this table the amounts of cash reserve held by the banks in 1902 are viewed as 100 and the amounts at later dates calculated as percentages of them. The results show that while the

TABLE V

LAWFUL MONEY RESERVE (INCLUDING REDEMPTION FUND) HELD BY NATIONAL BANKS ON OR ABOUT OCTOBER 1 OF EACH YEAR (00,000 OMITTED)

YEAR	NEW YORK		CHICAGO		ST. LOUIS		OTHER RESERVE CITIES		LOCALITIES OTHER THAN RESERVE CITIES		ENTIRE UNITED STATES	
	Amount	Percentage of 1902 Reserve	Amount	Percentage of 1902 Reserve	Amount	Percentage of 1902 Reserve	Amount	Percentage of 1902 Reserve	Amount	Percentage of 1902 Reserve	Amount	Percentage of 1902 Reserve
1902..	$186,1	100	$45,9	100	$18,7	100	$128,2	100	$144,9	100	$523,8	100
1903..	205,3	110	47,3	103	18,5	98	139,2	108	162,6	112	572,9	109
1904..	289,9	155	54,1	117	21,7	116	152,0	118	164,0	113	681,9	130
1905..	256,0	137	60,9	132	27,1	144	166,1	129	178,7	123	688,9	131
1906..	201,5	108	60,0	130	24,2	129	172,0	134	193,7	133	651,6	124
1907..	221,3	118	66,6	145	27,6	147	196,6	153	216,8	149	729,0	139
1908..	340,1	182	70,3	153	26,6	142	227,0	177	235,0	162	899,1	171
1909..	304,6	163	77,4	168	31,3	167	232,9	181	240,4	165	886,6	169
1910..	294,0	157	82,9	180	27,3	146	229,4	178	251,0	173	884,8	168
1911..	305,8	164	89,7	195	30,8	164	246,6	192	256,6	177	929,8	177
1912..	288,5	155	89,7	195	29,4	157	251,7	196	271,6	187	931,0	177

lawful money reserve held by the national banks of the entire country increased from 1902 to 1912 by 77 per cent, the amount held by the New York banks increased only 55 per cent. St. Louis increased 57 per cent, while Chicago increased 95 per cent or nearly doubled. The other reserve cities as a group gained 96 per cent, while the country banks increased 87 per cent. New York gained a little less than St. Louis, much less than Chicago, and also much less than the other banks of the country.

The same general situation may be made clear in another way. It has been shown above that the banks of the country are redeposit-

ing their reserves as much as ever. The New York banks, however, are receiving a much smaller part of these deposits than in earlier years The facts given in Table VI are the ones that show the change. These also are taken from the reports of the Comptroller of the Currency, the report selected for each year being the one nearest October 1, as in the three preceding tables. The first column gives the amount "Due from Reserve Agents" for the entire United States. As there is no such item for central reserve cities, New York City is in no way included. Column IV, "Due to National Banks," gives

TABLE VI

AMOUNTS DUE FROM NATIONAL BANKS (00,000 OMITTED)

Year	I Due from Reserve Agents (all National Banks)	II Due from National Banks Not Reserve Agents (all National Banks except New York)	III Total Due (Columns I and II Combined)	IV Due to National Banks (New York City only)	V Percentage Ratio of Column IV to Column I	VI Percentage Ratio of Column IV to Column III	VII Difference between Column IV and Column III	VIII Percentage Ratio of Column VII to Column III
1899...	$414,1	$184,2	$598,3	$252,7	61	42	$345,6	58
1900...	450,7	187,4	638,1	260,0	57	40	378,1	60
1901...	456,6	208,8	665,4	252,3	55	37	413,1	63
1902...	465,6	218,9	684,5	248,3	53	36	436,2	64
1903...	454,9	221,0	675,9	230,5	50	34	445,4	66
1904...	562,6	256,4	819,0	311,4	55	38	507,6	62
1905...	605,4	277,4	882,8	303,1	50	34	579,7	66
1906...	616,1	288,5	904,6	297,5	48	32	607,1	68
1907...	614,4	289,0	903,4	259,2	42	28	644,2	72
1908...	711,9	326,0	1,037,9	359,0	50	34	678,9	66
1909...	719,3	335,9	1,055,2	331,3	46	31	723,9	69
1910...	688,7	329,0	1,017,7	315,0	45	30	702,7	70
1911...	744,6	350,1	1,094,7	332,0	44	30	762,7	70
1912...	812,1	407,2	1,219,3	345,0	42	28	874,3	72

for New York City the item that indicates (not exactly but in a general way) the amount held by the New York banks as reserve agents for the banks in the interior. The growth in the amount left with reserve agents (column I) has been rapid, and, with the exception of 1903, 1907, and 1910, it has been steady. The amount held in New York (column IV) has also grown but with much less rapidity. A high point was reached in 1904, followed by a decline to $259,200,000 in 1907. In 1908 came a large increase soon followed by a drop to $315,000,000 in 1910. In 1912 the amount was only $345,000,000, much less than in 1908. The changes are best shown

in column V, which states the facts in percentage form. In 1899 New York owed the national banks of the country an amount equal to 61 per cent of the total amount due the national banks from reserve agents. This declined to 50 per cent in 1903, increased to 55 per cent in 1904, fell to 42 per cent in 1907, rose to 50 per cent in 1908, and has steadily declined ever since, until it was 42 per cent in 1912. A comparison with Table V shows a marked correspondence in the fluctuations in the amount of lawful money held by the New York banks and the amount due from them to other banks. New York banks held no more lawful money reserve in 1912 than in 1904 and owed only a little more to national banks. New York's cash holdings declined in 1906 and 1907 and increased in 1908. The same changes are shown in Table VI in the amount due to national banks. Since 1908 both items have declined. It is also to be observed that the decline in the percentages given in column V of Table VI has been almost constant.

Lest this should not seem to be an entirely fair statement of the case another item has been inserted in Table VI. Column II gives for all the national banks of the country (excluding New York) the item "Due from National Banks—Not Reserve Agents." This includes many exchange items which are purely temporary, but also includes many more permanent accounts. Column III combines columns I and II, while column VI compares this total with New York's item "Due to National Banks" in column IV. The same fluctuations and the same general decline are to be noticed. The 42 per cent of 1899 becomes 28 per cent in 1912, a drop of 14 per cent. Put in another way, the rest of the country has gained 14 per cent. Column VII gives the difference between columns IV and III, or, approximately, the amount held by the rest of the country.[1]

Nor have the total resources of the national banks of New York increased so rapidly as those in other parts of the country. This fact has been presented with great clearness and force by Professor A. P. Andrew,[2] and need only be summarized briefly here. Table

[1] Throughout the discussion of Tables V and VI, sight must not be lost of the duplications due to the practice of banks in Chicago and St. Louis sending their surplus funds to New York.

[2] See *New York Evening Post*, December 7 and 14, 1912, and January 8, 1913. These articles are reprinted in Senate Document 1003, 62d Congress, 3d session.

Constructive Rural Sociology. By JOHN M. GILLETTE. New York: Sturgis & Walton Co., 1913. 8vo, pp. xiii+301. $1.60.

The author not only presents this work as a text for colleges and normal schools, but hopes that its non-technical treatment will convey valuable suggestions to farmers as well. Conceiving sociology as a study of the well-being of society, and the term "rural" to include all interests not strictly urban in nature, he covers a wide range of rural problems. These may thus relate to the purely technological aspects of farming and marketing, or to such social and institutional questions as would naturally arise in rural communities. A definite program for improvement is usually coupled with his analysis. Recognizing the inevitable trend of population toward the city as a phase of our industrial development, he conceives the real rural problem to be the improvement of the condition of those persons who remain on the farm. The extensive character of the treatment makes it appear somewhat superficial at times. Statements of controverted facts are set forth unguardedly and there appears to be a lack of critical selection in the material employed. However, this admirably clear and compact survey of such a wide range of agricultural problems should afford a convenient introduction for further intensive studies in this field.

The Social Policy of Bismarck. A Critical Study, with a Comparison of German and English Insurance Legislation. By ANNIE ASHLEY. (Vol. III of "Birmingham Studies in Social Economics and Adjacent Fields.") London: Longmans, Green & Co., 1912. 8vo, pp. vii+92. $0.75 net.

For one who is interested in obtaining a brief survey of the origin and substance of German insurance legislation this book will be of considerable value. In it particular attention is paid to the social policy of Bismarck, who may be considered as the real author of the German social insurance system. Bismarck's life and character are admirably delineated with regard to his social views. The German social insurance system is outlined, in its historical development as well as in its present organization. The author completes her study by a comparison of German and English insurance legislation, pointing out and accounting for their chief divergencies.

The book deserves attention for its sound reasoning as well as for its clear and vivid description.